THE

AMERICAN JOURNAL

OF THE MEDICAL SCIENCES

FEBRUARY, 1889.

PELVIC MEASUREMENTS AND THEIR IMPORTANCE IN OBSTETRIC PRACTICE.

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The recent revival of the Cæsarean section will doubtless prove to be a great benefit to American obstetrics, even outside of the domain of the operation itself.

The one thing that the advocates of the improved operation most earnestly insist upon is, that it be deliberately chosen beforehand, and that no attempt be made to deliver in any other way. But the choice of so dangerous an operation implies the knowledge of an obstacle to delivery so formidable as to preclude a reasonable hope that any less radical procedure will be successful.

Now it is well known that in an overwhelming majority of all such cases the obstacle to delivery is some deformity of the pelvis, and that in every case of labor complicated by pelvic deformity it is necessary to consider with due care the nature and amount of the contraction before deciding upon any method of delivery, whether it be by induction of premature labor, the unaided powers of the patient at term, forceps, turning, embryotomy, gastro-elytrotomy, or Cæsarean section. So, when the advocates of the last-named operation insist upon its deliberate and exclusive choice in all suitable cases, they practically demand a careful examination of the pelvis of every pregnant woman before labor begins or as soon afterward as possible. For in no other way can the conditions which may make the operation necessary be excluded. As a matter of fact, skilful obstetricians have attended women in confinement, with no apprehension of the case being an unusual one, have tried the forceps, turning, and craniotomy in succession, and after the death of the

patient have regretted that Cæsarean section was not resorted to in the beginning.

Without any special search for such cases I have recently found accounts of three[1] on the pages of a single journal.

No doubt, many similar ones could be found. But for every one of these desperate cases of contracted pelvis there are many in which more conservative measures, such as the use of the forceps or turning, would suffice. That they are often overlooked is apparent from the number of reported cases of difficult labor in which the phenomena are such as would most likely be caused by a deformity of the pelvis, but in which no such examination has been made as would lead to its recognition. If interest in Cæsarean section causes these less dangerous, but far more frequent, cases of dystocia to be more thoroughly studied, that, in itself, will be a great gain. It cannot be doubted that in them a correct or even approximately correct knowledge of the pelvis would often lead to the adoption of better methods of treatment. The only question is, How is such knowledge to be obtained?

In order to form an independent opinion as to the value of such measurements as can be taken during life, I have recently made careful measurements of ninety dried female pelves, found in the various museums of Philadelphia. In this number are included twenty plaster casts in the collection of the College of Physicians. They were made by Tramond, of Paris, and careful study of them has satisfied me that they are faithful reproductions of the real pelves.

The ninety cases may be classified as follows:[2]

Normal	12
Justo-major	3
Generally contracted	13
Flat	10
Flat, generally contracted	16
Flat and oblique	2
Pseudo-osteomalacic	7
Oblique	6
Kyphotic[3]	3
Transverse contraction, brim and outlet	10
Transverse contraction of outlet	6
Infantile	1
Pelvis obtecta	1

[1] I. E. Taylor: Equally Faulty or Contracted Pelvis, American Journal of Obstetrics, August, 1883. J. L. Dawson, Jr.: Labor in a Justo-minor Pelvis, American Journal of Obstetrics, November, 1883. H. C. Coe: Paper before Obstetrical Society of New York, American Journal of Obstetrics, April, 1888.

[2] It is not pretended that this classification is the best that might be made. The difficulty of properly placing transitional forms, especially in the slighter degrees of contraction, has been very perplexing.

[3] These cases are called kyphotic because in all of them the conjugate is elongated, the transverse shortened at inlet and outlet, the brim made more nearly horizontal, and the sacrum more nearly vertical, all of these changes being apparently due to a marked kyphosis of the lumbar or dorso-lumbar column. The distance of the anterior superior iliac spines, however, is not increased as it is in the most typical kyphotic pelves.

In the discussion of these cases, by conjugata vera or true conjugate is meant the shortest distance from the promontory to the symphysis pubis. In cases of double promontory it is measured from the one nearer the symphysis. This diameter is regarded as shortened unless it exceeds 10 cm. (3.94 inches).[1] My measurements have all been taken in the metric system on account of its greater convenience. The most important ones are also given in inches.

Pelvic measurements as made during life are external and internal. The only instrument needed is a pelvimeter, or pair of calipers with a scale to indicate the distance of the points from each other. In selecting one from the many that have been devised, accuracy of graduation, rigidity, lightness, compactness, and absence of a set screw are qualities to be sought. In default of a regular pelvimeter, a pair of machinist's calipers with a scale or tape measure can be made to serve, but it will be more troublesome.

The External Conjugate.

The length of this diameter is ascertained by placing one point of the pelvimeter in the depression just below the spinous process of the last lumbar vertebra and the other upon the upper border of the symphysis pubis at whatever point gives the greatest distance. Moderately firm pressure is employed, and the distance read on the scale.

In thirty autopsies Litzmann[2] found the average excess of the external conjugate over the true conjugate to be 9.5 cm. (3.75 inches). Measured on the dried pelvis, the external conjugate is the distance from the extremity of the last lumbar spinous process to the tubercle of the os pubis close to the symphysis, and I have found it in seventy-four cases to average 7.8 cm. more than the true conjugate. Hence, in a typical normal pelvis, having a true conjugate of 11 cm., the external conjugate averages 20.5 cm. (8.07 inches) if taken during life, or 18.8 cm. if taken in the dried state. This makes the average thickness of the soft parts included during life 1.7 cm., which agrees precisely with the conclusion of Michaelis[3] that 8 lines (1.69 cm.) comes nearest the true average.

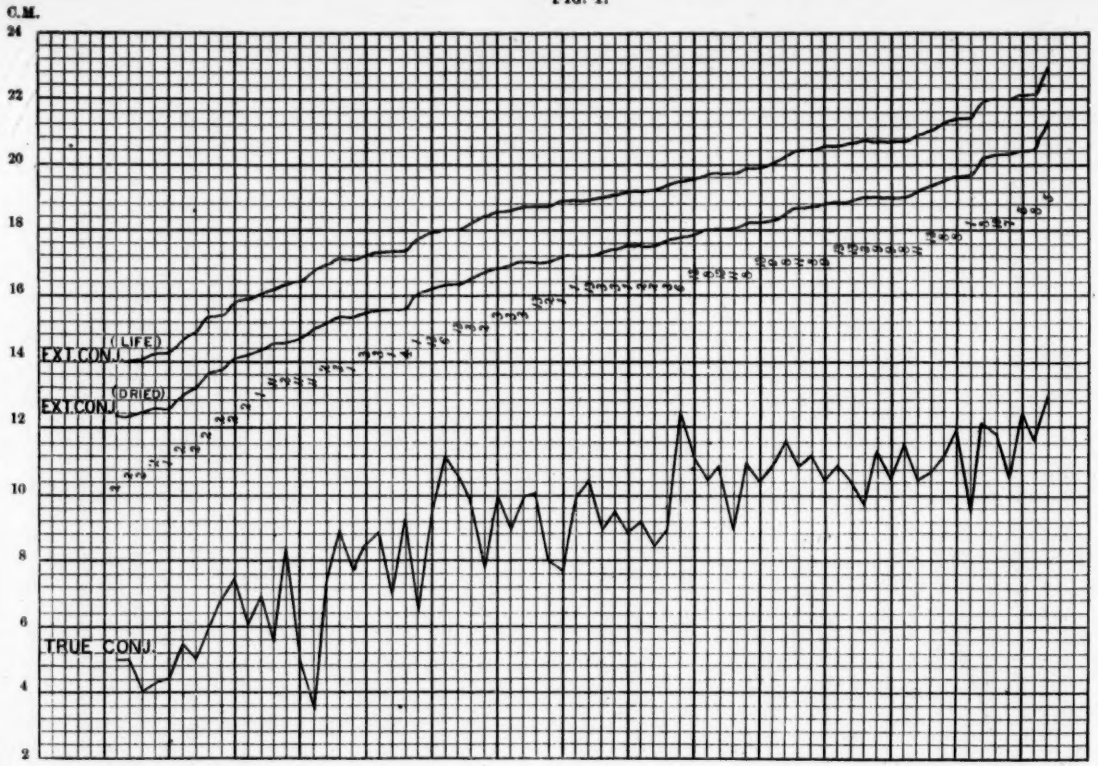
Baudelocque claimed that by subtracting 3 inches or 3¼ inches from the external conjugate the true conjugate could be ascertained to a line. He was soon shown to be wrong both in taking too small an average amount to be subtracted, and especially in greatly under-estimating the range of the variation from this amount. Thus Litzmann, in the thirty autopsies already referred to, found the difference between the external and true conjugate to vary between 7 cm. and 12.5 cm. On this account,

[1] Spiegelberg: Lehrbuch d. Geburtshülfe, 2te Aufl., p. 394. Lusk: Science and Art of Midwifery 2d ed., p. 462.

[2] Die Geburt bei engem Becken, Leipzig, 1884, p. 26.

[3] Das enge Becken, Leipzig, 1861, p. 89.

FIG. 1.



Relation of true conjugate to external conjugate.

1. Flat.
2. Flat generally contracted.
3. Generally contracted.
4. Infantile.
5. Justo-major.
6. Kyphotic.
7. Nägele's oblique.
8. Normal.
13. Transverse contraction.
9. Oblique.
10. Pelvis obtecta.
11. Pseudo-osteomalacic.
12. Roberts's transverse contraction

Baudelocque's diameter is sometimes spoken of as though it were useless. It still remains true, however, that by subtracting the correct average difference, an amount will be obtained which is more probably correct for the true conjugate than any other. Moreover, there is a certain proportion of cases in which this diameter will indicate with certainty that the pelvis is, or is not, contracted in the same direction.

Fig. 1 shows the relation between the conjugata externa and the conjugata vera in seventy-two dried pelves, arranged in the order of the former diameter, each vertical line corresponding to a single specimen. In order to show the length of the external conjugate, as measured in life, it is assumed that the thickness of the included soft parts does not vary from the average. As a matter of fact, it does vary[1] from ¼" to 1¼" (0.6 cm. to 3.2 cm.), but any considerable variation could be detected on external examination, and allowed for with sufficient accuracy.

The following table shows the varying degree of probability that the true conjugate is not more than 10 cm. in a case whose external conjugate is given:

TABLE I.

External conjugate in life.[2]	External conjugate dried pelvis.	No. of cases.	No. with conjugate 10 cm. or less.
22 cm. or more.	20.3 cm. or more.	5	0
21 " to 21.9 cm.	19.3 " to 20.2 cm.	5	1
20 " to 20.9 "	18.3 " to 19.2 "	12	1
19 " to 19.9 "	17.3 " to 18.2 "	13	7
18 " to 18.9 "	16.3 " to 17.2 "	12	6
Less than 18 "	Less than 16.3 "	25	25

The greatest external conjugate, in which shortening of the true conjugate occurs, is 21.5 cm. By looking at Fig. 1 the contraction in this case is seen to be very slight; and going backward no marked case of contraction is found until the conjugata externa is reduced to 19.7 cm., where a true conjugate of 9 cm. is found. Below this point contraction becomes much more frequent and more marked

The shortest external conjugate in which the true conjugate is not diminished is 18 cm. This is in a case of the kyphotic type, having a conjugate of 11.2 cm., and in another pelvis whose conjugate is 10.6 cm., apparently, but not certainly of the same type.[3]

The results obtained from this group of seventy-four cases accord very well with the conclusions of Litzmann,[4] which are as follows: When the external conjugate measures less than 16 cm. the pelvis is always nar-

[1] Michaelis, op. cit., p. 88.

[2] Estimated by adding 1.7 cm. to external conjugate of dried pelvis.

[3] This pelvis was disconnected from the rest of the skeleton, so I could not be certain.

[4] Die Geburt bei engem Becken, p. 26.

rowed in the same direction; when it is less than 19 cm. there is narrowing in more than half the cases; if it is from 19 cm. to 21.5 cm., narrowing scarcely occurs in one case out of ten; if it is more than 21.5 cm., contraction in this direction is not to be expected at all.

If I might be permitted to extend this statement by combining with it the results of my own cases, it would be as follows: If the external conjugate is less than 16 cm. (6½″), shortening of the true conjugate is certain, and is likely to be very considerable; from 16 cm. to 18 cm. (6½″ to 7⅛″) shortening is extremely probable; from 18 cm. to 20 cm. (7⅛″ to 7⅞″) the chances are even; from 20 cm. to 21.5 cm. (7⅞″ to 8½″) shortening of the true conjugate is highly improbable, and, if it does occur, slight; above 21.5 cm. (8½″) contraction in this direction may be safely excluded.

The Distance of the Iliac Spines and Iliac Crests.

We owe the use of these transverse diameters of the large pelvis in obstetric diagnosis to the genius of Michaelis. The distance of the anterior superior spines of the ilium is measured by adjusting the points of the pelvimeter to the spine of each side just outside of the tendon of the sartorius. Michaelis[1] recommends that they be moved downward a short distance, so as to grasp the tendons again, and that the reading be then taken.

The distance of the crests is obtained by applying the instrument to the two opposite points that are most widely separated, or, in case the crests approach each other, as they recede from the spines, points about two inches back of the latter should be taken. For these two measurements it is convenient to use the abbreviations sp. il. and cr. il.

Litzmann[2] found that in two hundred normal pelves measured during life sp. il. averaged 27.2 cm. and cr. il. 29.5 cm. The amounts to be subtracted in order to give the corresponding measures for the dried pelvis, he concluded to be 1.2 cm. and 0.9 cm., respectively. Michaelis,[3] however, by measuring twelve pelves, both in the living and dried state, found the average difference to be 8‴ for sp. il., and 6‴ for cr. il. From this we are justified in concluding that the true differences are nearly 1.5 cm. and 1 cm. Here, as in the case of the external conjugate, any unusual thickness or thinness of the integument can be noticed, and an allowance made.

The text-books of obstetrics sometimes give these two diameters as much smaller, probably because inside measurements are meant. Such measurements serve no good purpose, and as they confuse the subject, it seems as though they might well be discarded.

[1] Das enge Becken, p. 70.
[2] Die Geburt bei engem Becken, p. 27.
[3] Das enge Becken, p. 92.

Fig. 2 gives the conjugate and transverse diameters of the brim, together with sp. il. and cr. il. of ninety dried pelves arranged in the order of sp. il., each vertical line corresponding to a single specimen. That there is a relation between the transverse diameter and sp. il. is shown by the general rise of the line of the former, although it is very irregular, and is less rapid than that of the latter. In such a case we naturally expect the relation to be expressed approximately by a common ratio rather than by a common difference.

It is instructive to consider the cases in groups arranged in the same order.

TABLE II.

Sp. il. (dried pelvis).	Number of cases.	Average transverse.	Maximum transverse.	Minimum transverse.	Ratio of average transverse to sp. il.[1]
17 cm. to 19.5 cm.	8	10.4	11.5	8.8	0.517
20 " " 20.6 "	11	11.4	13.4	10.0	0.524
21 " " 21.5 "	12	11.7	12.5	11.0	0.516
22 " " 22.5 "	10	11.9	12.7	11.0	0.505
23 " " 23.8 "	13	12.6	13.2	12.0	0.504
24 " " 24.5 "	13	13.0	14.4	10.5	0.508
25 " " 25.7 "	10	13.0	13.8	11.4	0.487
26 " " 26.6 "	10	13.4	14.7	11.0	0.486
27	2	13.7	14.5	13.0	0.482

Here the average transverse diameter of the brim is seen to increase with tolerable regularity, but the striking irregularities in the columns containing the maximum and minimum seem to defy all attempts at computation. Still the attempt is not altogether fruitless. In the last column of the table it appears that the average ratio of the transverse diameter to sp. il., as measured during life, varies but little in the different groups, and that $\frac{1}{2}$ is a close approximation to it.

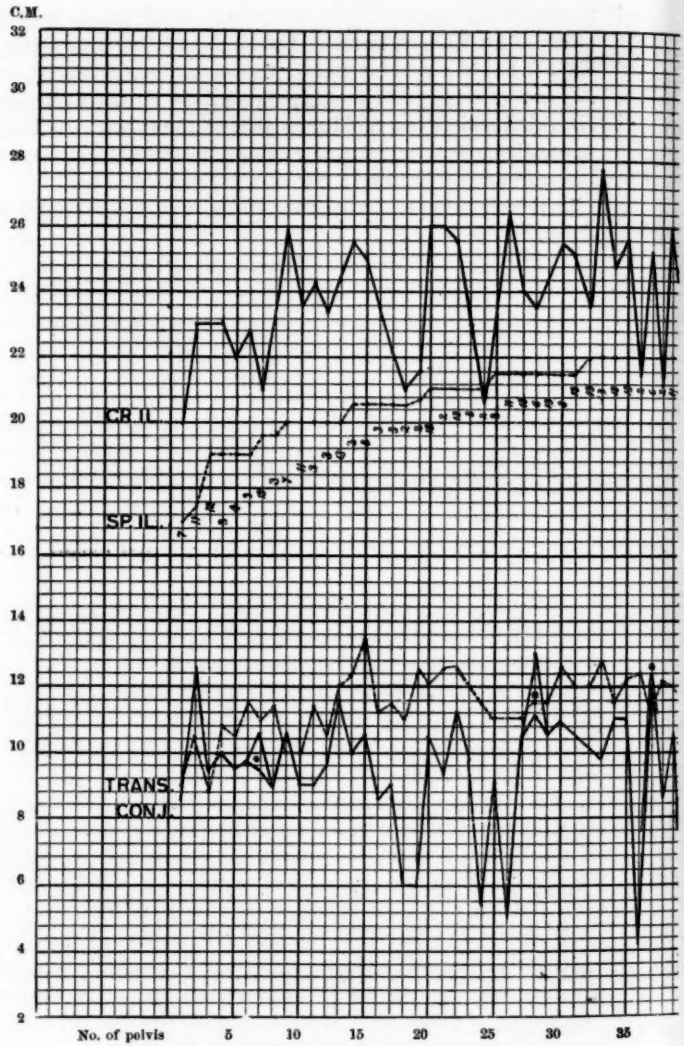
Now, taking each of these eighty-nine cases separately, adding 1.5 cm. to sp. il. to get the corresponding measurement during life, and assuming one-half of this to be the transverse diameter of the brim, I find the error to be less than 1 cm. ($\frac{2}{5}$") in seventy. In the remaining nineteen it is 1 cm. or more, and in two cases it exceeds 2 cm.

It must not be forgotten, in judging of this result, that these cases do not fairly represent the general run of deformed pelves; because the slighter and less irregular forms of contraction do not commonly find their way into museums; so that, in actual practice, we may reasonably expect the proportion of gross errors to be smaller. But when they do occur, can they be detected and reduced in amount?

The factors capable of disturbing the usual ratio between the diameters in question are changes in the inclination, breadth, and thickness

[1] Sp. il. is here supposed to be taken during life, and to average 1.5 cm. more than in the dried pelvis.

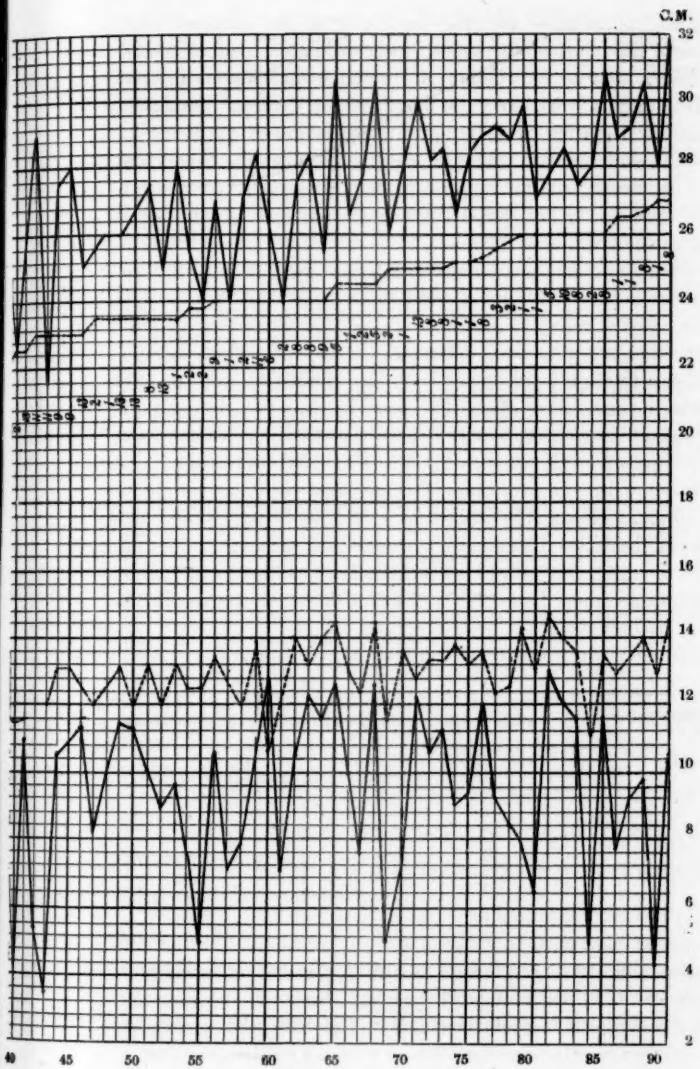
FIG. 2.



Relation of conjugate and transverse to iliac diameters.

1. Flat.
2. Flat generally contracted.
3. Generally contracted.
4. Infantile.
5. Justo-major.
6. Kyphotic.

* Two conjugates, owing to double promontory.



7. Nägele's oblique.
8. Normal.
9. Oblique.
10. Pelvis obtecta.
11. Pseudo-osteomalacic.
12. Roberts's transverse contraction.
13. Transverse contraction.

of the spreading portions of the ilia, especially in the anterior part. The thickness of the bones at the edges can be estimated without special difficulty. Some idea as to whether the breadth and inclination are greater or less than normal may be obtained by external palpation, paying particular attention to the length and direction of the line joining the superior and inferior spines of each side. Combined external and internal palpation will be of more value. If the ilia are thicker, broader, and more nearly horizontal than usual, one-half of sp. il. will be greater than the transverse diameter, and 1 cm., 2 cm., or even 2.5 cm. should be subtracted. If the opposite conditions prevail, an addition should be made; but it will seldom need to be more than 1.5 cm. It may fairly be claimed that the distance of the iliac spines is of great value in estimating the transverse diameter if used with all due care.

There is also a relation between the two iliac diameters and the true conjugate, which, considering their difference in direction, is truly remarkable. Examining Fig. 2, it will be seen that there are fifteen cases in which the line of cr. il. is within 1.3 cm. ($\frac{1}{2}''$) of that of sp. il. or actually falls below it. In every one of these cases the true conjugate is less than 10 cm. Hence it is plain that a very small or reversed difference between these two diameters is a strong indication of flattening.

The extent to which this is true is best shown in tabular form. Here, again, due allowance must be made for the fact that museum specimens are so largely pathological.

TABLE III.

Difference between sp. il. and cr. il.	Number of cases.	Number with conjugate of 10 cm. or less.
—1.5 cm. to 0 cm.	7	7 = 100 per cent.
0 " " 0.9 "	2	2 = 100 "
1 " " 1.9 "	12	9 = 75 "
2 " " 2.9 "	16	8 = 50 "
3 " " 3.9 "	24	12 = 50 "
4 " " 4.9 "	15	5 = 33 "
5 " " 6 "	14	5 = 35 "

Here, it appears that with increase of the difference in question the liability to flattening decreases, but it is also plain that no amount of this difference excludes flattening. Litzmann[1] thinks the explanation to consist in the fact that in rachitic children, the bones being soft, the pressure of inflated intestines pushes the expansions of the ilia apart in front and makes them more nearly horizontal, while the downward thrust on the sacrum brings the posterior ends of the ilia nearer together, and spreads their anterior ends further apart, at the same time that the promontory is brought nearer the symphysis pubis.

[1] Die Geburt bei engem Becken, p. 28

Kehrer also attributes the diminished difference between cr. il. and sp. il., in flattened pelves, to rickets, but thinks that the pull of the muscles attached to the pelvis is the principal factor in producing the distortion.

In non-rachitic flattening the two diameters usually have the normal relation to each other. On the other hand, the difference between them is very small in a considerable proportion of normal pelves.

Litzmann, as the result of extended researches, makes the following statement:

"The mean difference of the two transverse diameters is, in normal pelves, as in the dried skeleton, something more than 2 cm. Yet this relation is subject to great variation (nearly 5 cm.) corresponding to the varying degree of curvature of the iliac bones. In more than two-thirds of the cases the difference varies between 1.3 cm. and 2.7 cm. In nearly one-fifth it exceeds this amount; the large pelvis appears more closed in front; the distance of the anterior superior iliac spines is as much as 5.4 cm. less than the greatest distance of the iliac crests from each other. More rarely, in a little more than one-tenth of the cases, the curvature of the iliac bones is less; they open forward; the difference between the two transverse diameters falls as low as 0.45 cm."

Spiegelberg[1] formulates with great definiteness the use that may be made of these two diameters in ascertaining the type of any pelvis under examination. I quote his statement in full:

"The results obtained may be as follows:
"*a*. The distances are of average length, and their relation to each other the usual one, cr. il. 2.5 to 3 cm. larger than sp. il.
"*b*. The distances are more or less below the average, but have the normal relation to each other.
"*c*. The distance of the cr. il. is average, that of the sp. il. is greater than average; the difference between them is small, has disappeared, or is even reversed.
"*d*. Both distances are below average, and, at the same time, show the relation to each other given under *c*.
"In the Case *a* we almost certainly have a pelvis of normal size to deal with.
"In the Case *b*, with one of congenitally small build, but not otherwise changed in form (generally and evenly too small).
"In the Case *c* transverse straightening and, therefore, flattening exists, with otherwise roomy dimensions.
"In the Case *d* the pelvis is small and, at the same time, flat (generally contracted, flat pelvis)."

Although he does not say so, Spiegelberg must have meant these statements to be taken as only approximately true, for the exceptions are numerous, and so experienced and learned an obstetrician certainly knew of them.

Of twenty-three specimens coming fairly under his "Case *a*," ten were contracted at the inlet. Of thirty-one in "Case *b*," fourteen could not be called generally contracted. Two out of four in "Case *c*" were normal. Seventeen cases corresponding with the definition "*d*" in-

[1] Lehrbuch der Geburtshülfe, p. 397.

cluded flat, pseudo-osteomalacic, kyphotic, and oblique specimens that could not fairly be called flat generally contracted.

Undoubtedly cases as they occur in practice would make a better showing than this, but the necessity for caution is evident. Fortunately, the evidence given by the external conjugate can always be added to that of the iliac diameters, and this will prevent the acceptance of many errors that would result from too great reliance on the latter.

Distance of the Posterior Superior Iliac Spines.

To determine this distance the lowest point accessible to touch on the posterior part of the inner margin of each iliac crest is to be found, and their distance from each other measured either with the pelvimeter or a tape. In the normal dried pelvis I have found it to average 8.6 cm. It is often easy to measure during life, but in stout patients it may be difficult. In a single case Litzmann found the difference between its length during life and the corresponding measure in the dried state to be 0.6 cm. He found it to be diminished in generally contracted specimens, but to preserve the normal ratio to sp. il., while in flat, non-rachitic cases it was both absolutely and relatively smaller; still more so in flat, generally contracted ones, and most of all in the flat rachitic type.

My own results are in full accord with this statement. The distance is also diminished in the rarer cases of kyphotic pelvis[1] and Naegele's obliquity. In the latter the sacral spinous processes are nearer one spine than the other, which constitutes a valuable diagnostic sign. Except in the generally contracted pelvis, the diminution of this diameter is entirely independent of the width of the sacrum. It is, therefore, hard to understand why Litzmann should have spoken of it as capable of indicating the breadth of the sacrum and through it the length of the transverse diameter partly depending upon it.

Additional External Measurements.

Kiwisch has proposed that the external circumference be measured in a plane passing through the upper border of the symphysis and the spinous process of the last lumbar vertebra. This circumference averages about 90 cm., and is said to vary but little in normal pelves. If it is as low as 75 cm. or 65 cm., as it may sometimes be, the pelvis is certainly much contracted.[2] It seems evident that this measurement cannot be relied upon except to confirm conclusions arrived at by other means; but, as it is easily and quickly made, there can be no objection to taking it into account.

A number of oblique external diameters have been proposed as a

[1] Spiegelberg: Lehrbuch d. Geb., pp. 445, 446.

[2] Carl Braun: Lehrbuch d. Ges. Gynäkologie, 2te Aufl., p. 671.

means of ascertaining the presence or absence of obliquity at the brim. The most important of these diameters are measured from the anterior superior spinous process of the ilium, on each side, to the posterior superior spinous process, the tuberosity of the ischium and the trochanter, of the opposite side. It is difficult to fix upon the points, whose distance is to be found, with the necessary precision. Moreover, when the measurements are properly made they are not thoroughly reliable. They may be of value when taken in connection with other evidences of asymmetry, but taken alone they may even indicate an obliquity opposite to the one actually existing.

In the general run of cases the external conjugate with the distances of the anterior superior iliac spines, iliac crests, and posterior superior iliac spines will tell all that external diameters are capable of telling. All taken together, they will furnish a strong indication of the type of the pelvis, and, if contraction exists, they will give a rough notion as to its extent. This, however, is not sufficient in a case of deformity, and the investigation must be pursued further by means of internal examination.

The Diagonal Conjugate.

This is at once the oldest and the most valuable of all pelvic measurements. It was used by Smellie and enabled him to give the first estimates of the varying degrees of contraction that had any precision. When accurately made and carefully interpreted it gives the length of the true conjugate with a degree of precision that leaves little to be desired. Difficulties occur, however, both in making and in interpreting the measurement, and these require minute attention.

The measurement consists in the introduction of two fingers into the vagina, pressing the end of the middle finger against the promontory, bringing the radial edge of the hand against the sub-pubic ligament, marking the point of contact, and finally, after withdrawal of the hand, measurement of the distance from the mark to the end of the middle finger. It is not always possible to do this. In 611 cases in which Litzmann[1] attempted to determine the diagonal conjugate he succeeded in 301 and failed in 310. The promontory could not be reached in 61. The promontory was reached with difficulty, but its distance from the sub-pubic ligament not accurately measured, in 15. The measurement was hindered by resistance of the external genitals—rigid perineum, œdema of the vulva, etc.—in 17. It was hindered by low position of the uterus, head, or bag of waters in 175. Cause of failure not given in 42. The fact that in the majority of all these failures the cause was interference of the uterus, head, or bag of waters cannot fail to arrest attention. It clearly shows the wisdom of undertaking the examination early. And

[1] Die Formen des Beckens, p. 4.

since, in cases of contraction, premature labor is one of the most valuable methods of obviating the difficulties that would otherwise occur, the examination ought to be made when the patient is received. On the other hand, if the *head* prevents measurement, and is not impacted, that is so much evidence against the existence of contraction at the brim. In about one-fourth of the failures the cause was difficulty in reaching the promontory. These are only partial failures however, for a minimum value for the diagonal conjugate, and through it for the true conjugate, will be given, and this may be all that is needed.

The attempt to reach the promontory will be much favored by attention to the following points first laid down by Michaelis.

1. Bladder and rectum must be empty.

2. The patient should lie on her back with knees drawn up, the coccyx and perineum entirely free, but the sacrum elevated on a cushion so as to diminish the inclination of the pelvis as much as possible.

3. The hand must be well oiled and the labia or hairs must not be pushed in.

4. The examining arm must be supported in overcoming the resistance of the perineum, otherwise it will soon be exhausted and begin to tremble. Michaelis used the left arm, in order to have his right hand free, and placed the left foot upon a stool so as to bring the knee to press against the elbow, thus taking part of the strain off the arm.

5. The elbow must be dropped until the forearm is horizontal, perhaps even further.

6. The ring and little fingers must be bent at right angles at the first joint but not supported in the hand; only the surfaces of the first phalanges are to exert pressure.

7. Continued steady pressure is to be kept up so as gradually to overcome the resistance, but it must not be exerted upon the pubic bones.

The posterior wall of the pelvis is to be followed upward, and the promontory is recognized by the breadth of the cartilage between it and the last lumbar vertebra. After fixing the end of the middle finger on the middle of the promontory *the index finger of the right hand should carefully examine the posterior surface of the symphysis pubis, in order to compare its direction with that of the examining fingers*, in view of the possible necessity for a correction on account of the angle between the true conjugate and the symphysis being greater or less than usual. Then, after carefully making sure of the ligamentum arcuatum, the radial edge of the examining hand is to be brought in contact with it and the point marked by the nail of the right forefinger. Michaelis recommends that in doing this the elbow be raised, and the forearm brought into extreme pronation, so that the sensitive volar surface be directed toward the ligament. He thinks that most errors come from not accurately marking the anterior point. The left hand having been withdrawn,

as nearly as possible in the same position, the distance between the ulnar side of the end of the middle finger and the mark left by the nail can best be taken by the pelvimeter.

The diagonal conjugate having been measured, it remains to deduce from it the true conjugate. This is usually a very simple matter, consisting merely in the subtraction of the average difference between the two. Playfair,[1] in agreement with Baudelocque and the older obstetric writers generally, gives it as ½″ (1.27 cm.), but this is certainly too small. Lusk[2] subtracts from ⅝″ to ¾″, according to the height of the symphysis. Spiegelberg[3] and Carl Braun[4] mention 1.8 cm. (0.72″) as a general average.

My own measurements of ten normal pelves show an average difference between the two conjugates of 1.73 cm., while in forty-one flattened or generally contracted specimens it is 1.85 cm. (0.73″). If 1.8 cm. or ¾″ be taken, it will be near enough to the true average for all practical purposes. But the average difference may not be correct for an individual case. I have found the actual difference to vary from 0.8 cm. to 3.6 cm. It is, therefore, necessary to inquire into the number and extent of the errors that would result from assuming the average difference as fixed.

In forty-one flattened or generally contracted pelves I found that subtracting 1.8 cm. from the diagonal conjugate gave an error in the length of the true conjugate not exceeding 0.5 cm. (⅕″) in twenty-nine, or 71 per cent.; exceeding 0.5 cm., but not exceeding 1 cm. in eleven, or 27 per cent.; exceeding 1 cm., in one case, or 2 per cent. Here, of course, the proportionate number of serious errors is excessively large, owing to the fact, already twice mentioned, that museum specimens include an undue proportion of greatly distorted pelves. It was the rule of Michaelis to subtract a fixed average, except where there was manifest reason for its being too great or too small.

In trying to account for the comparatively few serious discrepancies that do occur, the variation in the height of the symphysis naturally suggests itself. Taking 4 cm. as the average height of the symphysis, and constructing on paper the triangle formed by it and the two conjugates, it will be found that each variation of 0.5 cm. in the height of the symphysis makes a corresponding variation of 0.3 cm. in the difference between the conjugates.

It might naturally be expected, then, that where the symphysis is not of the usual height a correction amounting to three-fifths of the variation would eliminate many of the errors in the estimation of the true

[1] System of Midwifery, 3d Am. ed., p. 386.
[2] Sci. and Art of Midwifery, p. 467.
[3] Lehrbuch d. Geburtshülfe, p. 400.
[4] Lehrbuch d. Gesammten Gynäkologie, p 673.

conjugate. Such an expectation is not justified when put to a practical test.

In my cases the greatest difference of all between the two conjugates was found along with an average symphysis; the least of all, along with one greater than the average.

Taking thirty-nine[1] of these cases the sum of all errors resulting from the subtraction of a fixed difference, 1.8 cm., was 15.7 cm., an average of 0.4 cm. Making the correction for variation in the height of the symphysis, many errors were diminished, but others were increased, so that the sum total was a trifle greater, 16 cm. instead of 15.7.

This remarkable result shows at once that there must be another and more variable factor in the difference between the conjugates; and the only one possible is the conjugato-symphysial angle, which has for its sides the true conjugate and the line joining its anterior extremity and the middle of the subpubic ligament. I found this angle in each case by plotting on paper, three sides of the triangle being known. It averaged in the thirty-nine cases 106° 30′, which corresponds closely with what Litzmann[2] appears to take as the average, viz., 105°.

In the case having the greatest difference between the conjugates, this angle was also greatest, reaching 145°. On the other hand, the smallest difference was associated with the smallest angle, viz., 86°. By taking half as many millimetres as the difference in degrees between the angle and its average, 105°, as the proper correction for the amount to be subtracted from the diagonal conjugate in each case, all the great errors are much reduced, and the sum total is brought down to 11.4 cm., although no attention is paid to the height of the symphysis. But by combining a correction for the symphysis with one for the conjugato-symphysial angle the best result is attained, the sum of all errors in the thirty-nine cases being 6.8 cm.

Now, how are we to make any practical application of these facts? The difficulties are obvious, for, while the height of the symphysis can easily be taken, it alone is nearly, if not quite, useless, and the situation of the angle does not admit of its being measured. True, many instruments have been devised in order to measure it, but their objectionable features have so far proved fatal to their extended use. Spiegelberg thinks it easy, by taking the height of the symphysis, together with its inclination and the height of the promontory into consideration, to make any correction that may be necessary. Others object that, in reality, it is very difficult, and the point certainly seems to be well taken. It must be borne in mind that the height of the promontory above the brim, and the inclination of the symphysis to the horizon are of no con-

[1] In two, owing to an oversight, the symphysis was not measured.

[2] Geb. bei engem Becken, p. 32.

sequence, except in so far as they influence the conjugato-symphysial angle. Michaelis's method of estimating any variation in this angle, already mentioned in connection with the measurement of the diagonal conjugate, seems to be the simplest and best.

The average amount to be subtracted should be adhered to, except where the reasons for changing it are manifest, and then it will be safer to make the correction too small rather than too large. Lusk aptly remarks, in this connection: "It is just here that judgment and experience furnish the best safeguard against vital inaccuracies."

The Transverse Diameter of the Brim.

The true conjugate being the shortest and most frequently contracted diameter of the inlet, and at the same time the one admitting of most accurate determination, has accordingly been regarded as by far the most important as a guide to treatment. Nevertheless, the enormous clinical difference between a simple flat pelvis and a generally contracted one of the same conjugate, makes it extremely desirable that some accurate method of finding the transverse diameter be found.

It has long been recommended that the varying degree of ease or difficulty with which the lateral walls of the pelvis can be reached in internal examination be taken into consideration, in connection with the external transverse measurements already discussed, as the best means of attaining the desired knowledge. This kind of an examination should always be made, changing the hand so as to reach both sides of the pelvis under the same conditions. This will at the same time be a valuable means of detecting obliquity.

Löhlein[1] has made an extensive study of the transverse diameter and has devised a method of computing it from the distance between the middle of the ligamentum arcuatum and the upper anterior corner of the great sacro-sciatic foramen of each side. This distance he calls the oblique ascending diameter, and measures it in the same manner as the diagonal conjugate. In the normal pelvis it is 2 cm. less than the transverse diameter. In flat pelves the relation between the two is inconstant, but in five generally contracted pelves Löhlein found a tolerably constant difference averaging 1.57 cm. In flat generally contracted pelves he found the individual variations to be greater, but still hoped that further experience would make his method useful in these cases.

As far as I have been able to test this method by measurement of fourteen specimens the result has not been encouraging. The number of cases, however, was too small and the types too varied to test thoroughly Löhlein's proposition, which refers only to generally contracted and flat generally contracted cases. We ought not to expect a constant

[1] Zur Beckenmessung. Ztschrft. f. Geb. und Gyn., vol. xi.

difference between the two diameters, but rather a constant ratio, and only in case the whole examination indicates a pelvis of normal form, though diminished size. In this country the most tragic results have been associated with just such cases. It is probable that in these pelves six-sevenths of the oblique ascending diameter is a close approximation to the transverse. Of course, both sides should be measured, and the mean taken. A difference between them of more than a few millimetres is evidence of obliquity.

Diameters of the Outlet.

The outlet being but very rarely more contracted than the inlet, comparatively little attention has been paid to it. It is not difficult to ascertain the direct diameter with sufficient accuracy. Attention to the curvature of the sacrum, together with its inclination to the lumbar column, will often be sufficient to show whether or not there is any considerable contraction in this direction.

The distance from the subpubic ligament to the sacro-coccygeal junction may be measured directly in the same manner as the diagonal conjugate, or, more conveniently, it may be taken externally with the pelvimeter and 1 cm. to 1.5 cm.[1] be subtracted.

The transverse diameter of the outlet cannot be easily or accurately measured, partly because soft parts of variable thickness cover the ischial tuberosities and also because the points whose distance is to be taken are not easily recognized even in the dried pelvis. With the patient on her back, the thighs flexed on the abdomen, and the knees moderately separated, the distance can be approximately measured with the pelvimeter or a tape, 1 cm. to 2 cm. being added for the skin and fat.

In conclusion, it seems proper to offer some definite opinions as to the bearing of pelvic measurements on obstetric practice. I would suggest the following:

1. Measurements are not to be regarded as necessary only in rare cases and hence but rarely employed. On the contrary, the pelvis of every pregnant woman should be examined when she is received as a patient or as soon afterward as possible.

On this point Spiegelberg says:

"It cannot be too urgently impressed that the pelvis is to be included in the examination of every pregnant and parturient woman, even when there is not the least suspicion of contraction. In this way, not only will the overlooking of anomalies be avoided, but the obstetrician will be prevented from finding himself at some time during labor brought face to face with difficulties of which he had no presentiment, and which, with timely knowledge he might have avoided or at least made less formidable."[2]

[1] Briesky, quoted by Carl Braun: Lehrb. d. Ges. Gynäkologie, p. 670.
[2] Lehrb. d. Geburtshülfe, p. 395.

The fortunate termination of previous labors by no means does away with the necessity for this examination. It is an undoubted fact, amply sustained by experience, that in cases of contraction the difficulties tend to increase with the number of labors, and while the first and second labors may end favorably, later ones may require the severest operative procedures.[1]

2. The examination should consist in measurement of the external conjugate, anterior and posterior iliac spines, and iliac crests. If these external measurements indicate a normal pelvis, the examination may end with them. But if contraction is suspected, the diagonal conjugate and the oblique ascending diameter of Löhlein should also be taken. These measurements should be considered in the light thrown upon them by the previous history and general condition of the patient, and especially by a careful internal and external palpation of the pelvic bones, which will reveal the necessity for further measurements if it exists.

ON THE DISTURBANCES OF THE TACTILE SENSORY FUNCTION OF THE SKIN IN CASES OF PERIPHERAL NEURITIS,

WITH THE NARRATIVES OF TWO UNUSUAL CASES OF PERIPHERAL PALSY.

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The disturbances of the tactile sensory function of the skin, in their extent, distribution, and quality, are apparently, in the experience of all observers, the most uncertain and variable of the manifestations of multiple peripheral neuritis—so much so, that now and again it would appear as though such disturbances were more accidental than essential in the clinical examples of that disorder which come before us.

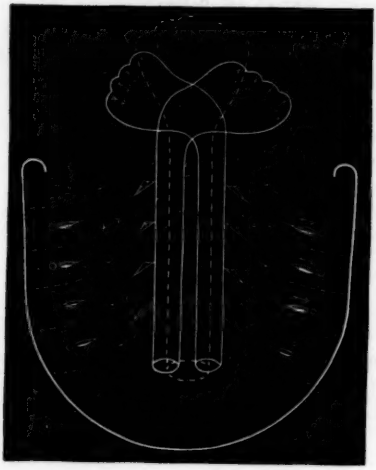
In peripheral neuritis, as in most other disorders of the nervous apparatus, it is the affection of motility which not only, as indeed is natural, most impresses the sufferer, but which is also more dwelt upon by the observer, by reason of its easy estimation, and as demanding, more directly, measures for its alleviation. The close association of sensory with motor paths in all parts of the nervous system, and a deeply rooted notion that inflammatory processes, especially those of an acute nature, are more prone to conform in their distribution to the limits of vascular and morphological areas, than to those of functional or physiological areas, have made it difficult for some to conceive of an inflammatory lesion which, in the periphery of the nervous apparatus, would pick out

[1] Michaelis: Das enge Becken, p. 195.

motor as distinct from sensory paths, or which might involve one or the other as distinguished from both.

The self-contained nature, so to speak, of the two systems, sensory and motor, in regard to their function and disease, in spite of their close association in a morphological sense—though generally recognized, so far as the brain and spinal cord are concerned, has not been admitted to obtain in the periphery. In the spinal cord, for instance, no one hesitates to admit the occurrence of lesions distinctly and exactly confined to physiological, as distinguished from morphological, areas, where the

FIG. 1.



In this diagram, which is based upon one figured in Dr. Pye-Smith's *Syllabus of Lectures on Physiology* (London, 1885), the motor apparatus, indicated by the continuous line, is shown to consist of certain parts of the convolutions of the various arbitrary anatomical regions of the brain and spinal cord, of the peripheral nerves, muscles, tendons, and bones. The sensory apparatus, indicated by the interrupted line, consists of the general surface of the body and all the various parts leading up to and terminating in some, at present, undetermined parts of the cerebral cortex.

spread of a lesion is determined and its limits defined solely by the path of some special impulse. Take, for example, the case of poliomyelitis anterior acuta, the stated lesion of infantile palsy, in which we, without much hesitation, assert that an acute inflammatory process is limited to a certain portion of the gray matter of quite arbitrary anatomical limits, while the contiguous and, anatomically speaking, continuous parts within the cord, are unaffected. The self-contained nature of the two nervous systems, efferent or motor, and afferent or sensory, is shown in the above diagram.

In looking along the whole length, so to speak, of the motor machine, it is clear that, at the two extremities, the anatomical arrangements are such as to constitute a considerable separation in locality between the tactile sensory and the motor paths. The separation has been amply established by clinical and experimental observation, as well in the spinal cord as in the brain itself, and, looking to the distal extremity, the separation in position of the ultimate ramifications of the spinal nerves is necessarily as obvious as the morphological individuality of the skin and muscle to which they are supplied. It is only when one comes to the intermediate sections of the two systems that one fails to realize so clearly their independence.

The histological identity of the two systems and their juxtaposition anatomically make it at first sight difficult to admit that in a compound nerve trunk there may be a lesion affecting alone the sensory or motor path.

Looking again at the two machines, sensory and motor, it is clear that a lesion at any point in the motor apparatus, in the brain, the spinal cord, the motor nerves, or the muscles, must cause an impairment or loss of motion in the same way that a lesion of the skin or at any point in the sensory system up to and including the tactile sensory centres, wherever they may be, must cause an alteration, loss, or impairment of tactile sensation.

My object, indeed, is to suggest that, in the consideration of the whole question of peripheral affections of the nervous system, we have two peripheries to deal with; that while both are, as far as experience at present goes, most commonly affected together, yet they may be and are affected quite independently of each other, that the systemic disposition of lesions, so readily admitted in the case of the spinal cord, must be allowed to obtain in the case of the peripheral nerves, so that lesions in the periphery may be, as in the centres, purely motor, or purely sensory, or mixed in their manifestations.

The practical point I wish to make is, that it is possible to have an extensive and pronounced affection of the peripheral motor nerves without any affection whatever of their sensory companions. The antecedent probability of such a condition is, to my own mind, clear, and of its clinical and pathological actuality I hope to be able to produce some evidence.

CASE I. *Spontaneous multiple neuritis with enlargement of the spleen, occurring in an anæmic girl; no affection of the tactile sense.*—Emily K., aged eighteen years, was admitted into the General Infirmary at Leeds under my care on March 30, 1887, complaining of general and intense muscular weakness.

History. The patient was quite well until July, 1886—that is, nine months before the clinical report here reproduced was written by Dr.

Griffith, then resident medical officer. The onset of the illness seems to have been somewhat rapid and definite, but the only circumstance which could be, in any reason, suggested as a cause, was that, on a certain day, feeling much heated, she put her feet into cold water to cool herself. After this she vomited. There was marked general disturbance, and she was confined to bed for a fortnight, during which time there was very little change in her condition. In a short time she was unable to walk, but when the weakness actually came on is not certain, as her apparently rather acute illness covered its advent. She gradually got worse, and at last was unable to move her arms or legs with any degree of force.

During the three months immediately preceding her admission she has been improving, and latterly has begun to walk again. There has not been any difficulty in swallowing, nor alteration of voice, nor evidence of laryngeal affection. There has been no scarlet fever nor any other acute illness. Menstruation was normal until the beginning of her illness, but since then she has menstruated only three times.

Present condition. Patient is an intelligent girl, of distinctly chlorotic aspect. The face is pale, and there is a slight fulness with pigmentation underneath the eyes. The lips are of fair color. She makes no complaint, except of the weakness of the limbs.

Muscular system. The patient can walk with assistance. This she does in a very slow and feeble, but not tremulous manner, It is particularly noticed that the toe is the last part of the foot to leave the ground in progression, and, looked at from behind, the soles of the feet are seen more than normally during walking. The legs and thighs are ill-nourished, and the muscles are flabby when she lies upon her back in bed. The dropped position of the foot is very striking. Both feet are extended, so that the dorsum of the foot forms an almost continuous line with the front of the leg. The great toe is not drawn down toward the sole, but is in line with the dorsum of the foot. The anterior tibial muscles are much wasted, as shown by the marked excavation between the tibia and fibula. She can raise the legs as a whole against only a moderate amount of resistance, the muscles of the thigh standing out fairly well, though they are clearly much diminished in bulk. She can extend the feet with some slight force, but cannot flex them to the smallest degree. The muscles of the calf, thigh, and gluteal region present nothing abnormal beyond general flabbiness. She can raise herself to the sitting posture, but cannot do so quickly. The spinal muscles do not appear to be seriously affected.

The upper extremities are small, the muscles flabby and of small size. She can raise her arms from her side, but not with any degree of force. There is some deficiency of the lower part of the deltoids. The latissimi and serrati appear to be unaffected. She can flex and extend the elbow-joint, and when this is done with great effort the supinator longus forms a narrow band just outside the biceps, as if its anterior part were less wasted than its posterior. The forearms have the appearance due to a very general and extreme effacement of their muscles. The hands are in a very striking condition, and manifest a rather strong suggestion of the "main en griffe" due to the prominence of the heads of the metacarpal bones and the wasting of the interossei and muscles of the palm, together with a very moderate degree of contracture of the paralyzed extensors and flexors. There is marked dropping of the wrist and for

practical purposes the hands are completely useless, all attempts at using them ending in a fumbling, flail-like movement of the wrist-joint only.

In all the affected parts the most careful and repeated testing failed to find even in the smallest degree any affection whatever of tactile sensory function, and this appears to have been the case from the very beginning. She has never experienced any pain or perversion of sensation whatever.

There is occasionally the faintest response to percussion of the ligamentum patellæ on the left side, but the knee-jerk cannot be obtained on the right side. The plantaris reflex is entirely absent. The abdominal reflexes are present. The faradic reaction is seriously diminished in all the affected parts, but it cannot be said that it is, at any part, totally in abeyance.

The digestive and respiratory organs appear to be normal. There is a systolic bruit at the base of the heart, probably of pulmonary origin, and of a functional character. The spleen is distinctly enlarged, being easily felt on deep inspirations at a point three inches below the left costal margin. The liver cannot be felt. The urine is normal. Temperature 99° F. The optic disks are pale, but show no sign of disease.

The patient was of an exceedingly wayward temperament, and much to the disappointment of myself and her friends insisted upon leaving the hospital at the end of six days. However, in November, 1887, I had an opportunity of seeing her, and found her to be able to walk very much more easily than previously, though I could not satisfy myself that any substantial improvement had taken place in the condition of the upper limbs.

The symmetrical distribution of the paralysis, its exaggeration in the most distant parts of the limbs, as evidenced by the marked dropping of the feet and wrists, while the muscles of the trunk were exempt, the absence of any affection of the bladder or rectum, and the non-occurrence of bed-sores, seem to me to point directly to the peripheral origin of the disorder. The enlargement of the spleen we were unable to explain, unless it was the remainder of some acute change occurring in the onset of the illness—which I very much doubt. It did occur to me that it might be associated with the general and profound anæmia which existed.

Case II. *Multiple peripheral neuritis following a septic wound; practically no affection of sensation.*—John M., aged thirty-eight years, an engine-tender, was sent to me by his medical attendant, who, having some suspicion that the man was suffering from an anomalous form of nervous disease, wished me to express an opinion upon the case.

The narrative of events up to January 16, 1888, when I saw him for the first time, is quite clear and definite. In the first week of October, 1887, he trapped the little finger of his left hand, and a few days later the finger, having been poulticed, was incised, and some thin watery pus set free. There was particularly well-marked lymphatic inflammation of the forearm, the skin presenting a strikingly arborescent appearance. There were swelling, pain, and hardness of the left axillary lymphatic glands. At the end of fourteen days he had practically recovered from

the surgical condition, but the left hand and arm remained stiff for, perhaps, the whole of the November following.

On December 22, 1887, he returned to his medical attendant, complaining of "pins and needles" in all the limbs, with loss of grasping power, weakness of the legs, and numbness of the fingers, symptoms which he, himself, ascribed to the injury.

On January 10, 1888, thirteen weeks from the date of the injury, I saw him for the first time. He told us on this day that the stiffness of the left forearm and hand continued for three weeks after the injury, and then there appeared numbness in the fourth and fifth fingers of the left hand. Five weeks afterward the feet became numb, and were the seat of pricking sensations, and, two weeks later, the right hand was similarly affected, so that, at the end of seven weeks, the hands and feet were in a similar condition, so far as "numbness and pricking" were concerned. At the same time there was marked motor weakness in all four limbs, and the legs were slightly stiff as if from cramp. The feet were described as feeling loose at the ankle, and as scraping along the ground when walking. The gait was quite characteristic of the weakness of the anterior tibial muscles. On account of the difficulty in raising the point of the toe from the ground the whole foot had to be lifted in such a manner that when the observer was standing behind the patient the whole of the sole from the heel to the toe was seen at every step. The knee-jerks were entirely absent. There appeared to be some diminution in substance of the anterior tibial muscles when compared with his general nutrition, and they reacted only tardily to a strong faradic current. The weakness of the hands was extreme, on the left side the dynamometer registered only ten pounds, while on the right side the instrument marked thirty pounds, showing a serious diminution of power on this side also. Careful testing failed to find any alteration of tactile sensation in any of the paralyzed parts, but he stated that there had been some diminution of ordinary touch sense in the left hand.

The pupils reacted normally, and there was no weakness of vision. The optic disks were normal. Swallowing had not been affected, and was performed naturally at the time of observation. The voice was not, and had not been altered. The urine was normal. When directly questioned he said he had not had any sore throat, neither had there been any of an epidemic kind in the neighborhood in which he lived. There was no evidence of lead-poisoning or of any of the more generally recognized toxic conditions which produce peripheral palsies.

He was at once put upon a course of iron and arsenic, and gentle faradism applied to the limbs daily.

On February 3, 1888, the dynamometer registered thirty-eight pounds for the right hand, and twelve pounds for the left. He could undress himself, which he could not do before. The knee-jerk was still absent.

On March 2d the dynamometer registered seventy pounds for the right, and fifty pounds for the left hand. The knee-jerk was still absent.

On March 16th he was still improving. I failed to get the knee-jerk, though using the Jandrássik method, but the internal vastus contracted on direct percussion. The gait was quite natural.

On April 3d the right hand made seventy-five pounds, and the left seventy-two pounds, with the dynamometer. On percussion of the ligamentum patellæ a slight but distinct contraction of the right internal

vastus was seen—once, on the left side, the foot was distinctly jerked forward.

On April 22d the knee-jerks could be easily elicited on both legs, and he was practically well.

The causal relations of this case are extremely interesting, though they do not here concern us, and the only point in the case to which I wish to direct attention is, that while the patient described various subjective disturbances of sensation, such as numbness, pricking, and the like, there was not, except in the left hand, at any time, any disturbance of the ordinary tactile sense. This is a seemingly paradoxical condition, which I have now and again observed in other conditions, which may have for their anatomical bases some changes in the peripheral nerves, such as "waking numbness," for instance.

Naturally, examples of pure motor or pure sensory neuritis will be found confined, for the most part, to the parenchymatous form of the disease, for, in the interstitial variety, it is obvious that there will be no respect for the kind of fibre involved, since the connective tissue is common to all parts of the compound nerve trunk. Perhaps the best available pathological evidence of the occurrence of a pure motor neuritis is that afforded by a remarkable case recorded by Joffroy.[1] This case, published in 1879, and frequently referred to by writers on peripheral neuritis, was one of peculiar interest, in which there supervened, during convalescence from smallpox a well-marked atrophy of the muscles with corresponding paralysis. During life the case had been regarded as one of poliomyelitis anterior acuta, the entire absence of any tactile sensory disturbance, in accordance with the views held in 1871, when the case was under observation, determining Joffroy to that diagnosis. Ultimately the patient died of tuberculosis, and the examination of the parts involved discovered no lesion of the spinal cord, or of the nerve-roots, but in the muscles and peripheral nerves the following changes were found:

"The atrophied muscles presented a pale, dead-leaf color to the naked eye, and, on microscopic examination, disappearance of the striæ, proliferation of the intra- and extra-cellular nuclei and a granulo-fatty change of the substance of the muscle fibre. Several nerves from the limbs were examined. To the naked eye they presented no abnormal appearance. On microscopic examination, in all the sections examined, a number of perfectly healthy tubules were visible, but in a large number of other tubules there was noticed to be a segmentation more or less advanced of the white sheaths, and also numbers of fatty granules, which, in some instances, entirely filled the tubule, while the nuclei of the primitive sheath were largely increased in number."

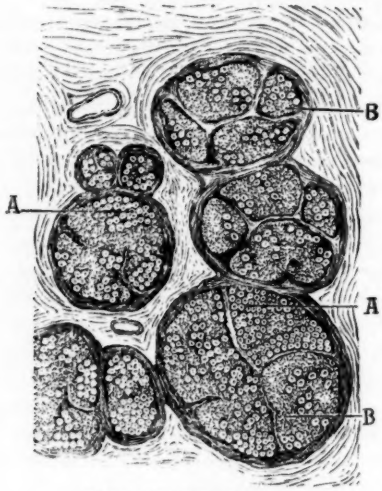
These appearances are clearly shown in the drawings accompanying Joffroy's paper—two of which are here reproduced.

The same description applies, also, to a second case, recorded in the

[1] Archives de Physiologie Norm. et Path., vol. xi. p. 177.

same paper, in which a man suffering from phthisis was also paraplegic. The paralyzed limbs in this case showed normal sensibility to pain,

FIG. 2.

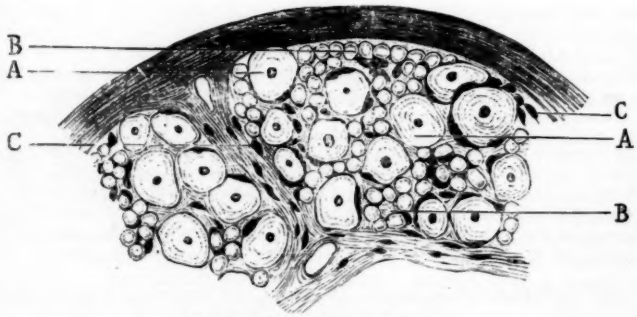


Section of the left radial nerve.

A. Normal nerve-fibres. B. Remains of nerve-fibres affected by parenchymatous change.

temperature, and pressure, though, on account of mental hebetude, there was just the smallest reservation as to the integrity of the tactile sense to more delicate impressions.

FIG. 3.



High power view of the same lesion.

A. Normal nerve-fibres. B. Remains of nerve-fibres affected by parenchymatous change.
C. Nuclei belonging to the primitive sheath.

In 1879, Déjerine[1] published an account of two cases of Landry's paralysis (a disorder which has, for one of its most striking, features, an absence of all disturbance of the tactile sensory function of the skin) in which there was found, post-mortem, a perfectly natural condition of the spinal cord, while there were most marked inflammatory changes in the anterior spinal roots, the nerve-trunks, and intra-muscular nerve-fibres.

In 1880 Eisenlohr[2] recorded a fatal case of lead palsy, in which, as is generally found, there was no affection of the tactile sense, but in which, at post-mortem, a well-marked neuritis of the affected parts was found.

Gombault[3] has also recorded a case of lead palsy under Charcot's care, in which were found changes in the peripheral nerves almost identical with those described in Joffroy's case above quoted. In this case there was, also, no disturbance of sensibility.

(The selective power of lead, or, if one may so speak, the striking originality of the distribution of lead palsy, is certainly most remarkable, for it appears to be able not only to take the motor and leave the sensory side of the nervous system, but seems to be still further able to confine its action to certain sections of the neuro-muscular apparatus. I need scarcely remark the great infrequency with which the muscles of the eye, the respiratory muscles, and the muscles of the face are affected in lead poisoning.)

Dr. Byrom Bramwell[4] has quite recently published a case of well-marked alcoholic paralysis, "in which myalgic pains and tenderness were absent, and in which there was very little affection of cutaneous (tactile) sensibility," "until," curiously, "the stage of convalescence was reached, when marked hyperæsthesia of the skin was developed."

All these cases seem to me to suggest that certain toxic substances, such as lead, and certain infectious processes, such as that of an ordinary septic wound, have, under some circumstances, the power of selecting certain parts of the nervous structures, according to the function of those structures, and not according to their anatomical position and association, for the field of their operation. This notion appears to me to be no more difficult of acceptation than is the fact that the influences which bring about such diseases as locomotor ataxy and a variety of spastic paraplegias pick out from the spinal cord a purely sensory tract in the one instance, and a purely motor tract in the other—both of which are simply conducting paths, taking on a diseased process at any

[1] Recherches sur les Lesions du Systeme nerveux dans la paralysie Ascendante Aigue. Paris, 1879.

[2] Deut. Arch. f. klin. Med., 1880, xxvi. p. 543, quoted by Dr. M. Allen Starr, in his Middleton-Goldsmith Lectures, Medical News, February 12, 1887.

[3] Archives de Physiologie Norm. et Path., 1873, p. 593.

[4] American Journal of the Medical Sciences, June, 1884, p. 575.

point external to, and usually quite remote from, the central organs in which they end.

In this regard I have often thought that rheumatic facial paralysis—that form of facial palsy, that is to say, which follows upon exposure to cold—is a condition of great interest. Of distinct and clear evidence of the part of the portio dura affected in such cases there is none that I know of forthcoming. The circumstances of the malady forbid that there should be such evidence. It is generally stated that the lesion in question is situated in the Fallopian canal, and that the suggestion of the palsy being due to the direct action of cold upon the terminals of the nerve is, for various reasons, untenable; still I fail to see why, such a cause as cold being allowed, it should be said to act upon a deeply seated and bone-protected part of the nerve-trunk in preference to those parts of it which are so much more obviously exposed on the face. However, adopting whichever hypothesis we may, I would ask, Why do we not see with something like corresponding frequency the sensory nerves of the same region affected by similar exposure? In my experience simultaneous affections of the corresponding fifth, in cases of Bell's palsy from cold, is exceedingly rare. May this not be that the exciting cause has some preference, as it were, for a motor, rather than for a sensory fibre?

I have ventured to treat the subject at such length because I deem it one of great practical importance. The more we can, if I may so speak, place the causes of paralysis in the periphery as distinguished from the centre of the nervous system, the more intelligible and the more successful will our treatment become. Moreover, it has seemed to me that there is a tendency to set up, while our experience is still limited, some affection of the tactile sensory nerves as a test of peripheral palsy, and so to exclude some cases from the category of peripheral neuritis to which they rightfully belong. It is against the institution of such a test that my remarks are directed.

THE PATHOLOGY AND TREATMENT OF INTRA-NASAL SCLEROSIS.

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The pathogenesis of advanced nasal catarrh has received but little attention from pathologists, and the descriptions of the conditions present are of the crudest character in all the general text-books.

Works on rhinology are but little more satisfactory, and to the recent writings of Bosworth, of New York; Mackenzie, of Baltimore; and Seiler, of Philadelphia, we owe by far the greater part of our knowledge of the subject. Detailed accounts of the treatment of this stage of nasal inflammation and of its results are scarcely to be found.

Leaving, therefore, the simpler phenomena of rhinitis simplex, I will pass to the consideration of true rhinitis hypertrophia. This disease is readily divided into two stages (J. W. Mackenzie): *a*, dilatation with hypertrophy; *b*, complete hypertrophy—or, as I much prefer to call it, *sclerotic rhinitis*. The appearances, on inspection of the latter stage, are most characteristic; anteriorly the lumens of the nares are found to be of fairly normal diameter, rarely is there much stenosis; the turbinated bodies, particularly the lower, are usually of light color, pink, grayish, or yellowish; their surface is very irregular and bossellated; and, on pressure with a probe, their hard glassy look is found to be due to a dense elastic consistence. Enchondroses of the nasal septum are of very frequent occurrence, especially at the extreme anterior lower border of the cartilage, or a long, sometimes blade-like, ridge may extend the length of the septum narium. Frequently the turbinated body will be found to be markedly grooved by a corresponding ridge projecting from the cartilage, although a considerable interval of clear space may intervene at the time of examination; showing, conclusively, that during the first stage of the hypertrophic process, and during the preceding stage of rhinitis simplex (*i. e.*, vasomotor paresis), the turbinated body pressed against the nasal septum. The history of very troublesome stenosis at some previous date can nearly always be elicited in the case of intelligent patients.

The middle turbinated body is greatly enlarged at its anterior extremity in many cases; it is commonly compact and fibrous in consistence, and may be so large and hard as to be firmly jammed in the nasal lumen. In advanced cases these nasal fibromas of the middle turbinated frequently undergo myxomatous degeneration—forming *myxofibroma* of Ziegler—and are then soft and gelatinous, giving the appearance of a sessile polypus. In other cases the middle scroll is extensively atrophied, and has a thin, pinched, blade-like appearance.

Posteriorly, as shown by the rhinoscope, the general mucous membrane has undergone thickening and fibroid change; the membrane is very light pink or yellowish in color; hard and dense in appearance and on testing with the laryngeal probe. The lips of the Eustachian tubes may be entirely yellow, and quite hard from fibroid change. These are usually sessile, or more rarely pedunculated posterior hypertrophies; small, usually much corrugated masses jutting from the floor of the nose, from the extremity of the lower turbinated body, or least usually from the bony septum. They are white or yellow, and firm

and elastic in consistence, and are oftenest somewhat symmetrically distributed.

Following the almost universal rule of intra-nasal inflammations the upper and lower pharynx present marked and advanced changes. The glands forming the much talked-of, but slightly vaguely defined, *pharyngeal tonsil*, are atrophied, and those which have not undergone sclerosis are swollen and intensely irritated, and secrete mucus abnormal in both quality and quantity. In advanced cases the size of the pharyngeal vault is notably increased by atrophic changes.

The lower pharynx shows decided atrophy, the changes having been already described by me in a previous paper;[1] the larynx, as there mentioned, is, in my experience, always involved, and the bronchi are not infrequently implicated.

The *pathology* of sclerotic rhinitis may now be said to be perfectly understood, the studies here detailed seeming to bridge over the remaining gaps in our knowledge. As an inevitable result of long-standing rhinitis, we find the mucous membrane, the submucous, and cavernous connective tissue, all densely infiltrated with numerous leucocytes, which infiltration, following the universal law of chronic inflammations, becomes "organized" into new connective tissue. By the contraction and pressure of the new growth, and other processes detailed below, the vascular sinuses are gradually obliterated, so that they are found only subjacent to the periosteum or perichondrium (Seiler). There are four modes of obliteration of the "erectile sinuses" in sclerotic catarrh (Mackenzie): 1. Hypertrophy—new formation—of the connective tissue, and contraction of the same, above described. 2. "By obliteration of their lumen by masses of round cells," and organization of the same. 3. By the formation of buds on the sinus walls, first noticed by Councilman. 4. By the formation of thrombi in some cases. The first two processes are those common to any chronic inflammation. The formation of these "buds" or septa is of great pathological importance; in some sections half the sinuses will contain "buds" of fibrous tissue, more or less completely blocking up their lumen. Their growth is due to the puckering of the sinus walls from the general contraction, plus the persistent irritation and hypertrophy of fibroid tissue which are present. The formation of parietal thrombi, discovered by Mackenzie, of Baltimore, is what might be expected from the active bloodvessel changes which are taking place. They are probably common in those exceedingly rapid cases of nasal catarrh in which the grade of chronic inflammation is of an acute type.

It will at once be seen that these phenomena can bring about but one result, the conversion of the affected turbinated tissue into a fibrous

[1] The Medical News, October 22, 1887.

mass. Tissues, other than the vascular sinuses, are synchronously affected. The pressure exercised by the new growth induces atrophic changes in the glandular structures, which are finally destroyed; the ordinary nutrient bloodvessels are also constricted, and the vicious circle of changes goes on until, in extreme cases, the lower turbinated body may be represented by a mass of mere scar tissue.

Early in the pathological history of sclerotic rhinitis, changes in the epithelial layer take place, shedding and proliferation, and later in the process the formation of hypertrophic *papillæ*. This morbid phenomenon I have never seen noticed by any previous writer. It will frequently be observed, when examining cases of long-standing rhinitis, that the mucous membrane covering the scroll-like bodies has a coarsely velvety, or very minutely bossellated contour; this appearance is due to the growth of *papillæ* from the mucous membrane; multiple "papillomata" of very minute size springing from the surface of the turbinated tissue. The structure of these projections is precisely that of the so-called typical *papillomata;* they are made up of vascular connective tissue capped by layers of epithelium, the bloodvessels being frequently numerous, and forming vascular loops. These minute papillomata may undergo atrophy, the surface of the turbinated body becoming smooth and glassy, or they may persist indefinitely. Clinically, their importance is doubtless considerable, as they must add to the always present septic condition by entangling morbid products and increasing the difficulty of clearing the nose either by blowing or by medical means.

The pathological changes in the pharyngeal vault are similar to those found in the scroll-like bodies, and may be briefly described as gradual glandular and vascular atrophy from the pressure exercised by the new formed connective tissue.

The *causes* of sclerotic rhinitis cannot be given in the present state of our knowledge; the long catalogue of etiological factors, given in many memoirs and text-books, must appear to any analytical mind illogical and untenable. Early stages of nasal catarrh are dependent in part on climatic, in part on anatomical and developmental, and largely on factors as yet indefinable, which are part of our civilized life. The fads of rhinologists, when weighed from the standpoint of the comparative pathologist and cautious scientist, will be found to be but sieves. The very popular one of unphysiological clothing need only be mentioned; surely no unprejudiced man of science will deny that clothing is now as well adapted to the needs of the human organism as at any time in four hundred years; yet nasal diseases are increasing in frequency yearly on our Atlantic seaboard. Also in many European States, where the dress does not in any way differ from that worn in the United States, chronic catarrh is rather a rare disease. It need only be added that nasal in-

flammation is much more common in men than in women, and is rather rare among actresses and opera singers.

Why a certain, fortunately small, proportion of cases of chronic rhinitis run on to typical sclerotic catarrh, and the larger portion remain *in statu quo* until old age comes to sap the vitality, cannot be stated; *a low bloodvessel vitality* seems to be the immediate cause. Intra-nasal "sclerosis" differs from "atrophy" only in the rapidity and extent of tissue implicated. The two diseases have, however, very marked differential points, and call for somewhat different treatment.[1]

The *symptoms* of sclerotic rhinitis are many, frequently serious, but far from distinctive; rarely is there either hypersecretion or nasal stenosis, though the first may be found in cases in which myxomatous changes have taken place, and large septal enchondroses may cause the latter. Dribbling of thick, tenacious mucus from the posterior nares—from the diseased pharyngeal tonsil—is common, and is often most bitterly complained of. Frontal headache, from congestion of the frontal sinuses, and irregular and frequently severe head pains from implications of other bony sinuses, are frequently the cause of patients presenting themselves for treatment. The sense of smell is blunted, and taste is, consequently, frequently much impaired.

The chronic pharyngitis and laryngeal implication always present give the symptoms already detailed in a previous paper.

The laryngitis, tracheitis, and even chronic bronchitis, so frequently found in advanced cases of this disease, are directly symptomatic of the nasal lesions. As Bosworth has so well shown, the turbinated bodies are almost the sole source of the moisture needed to saturate the inspired air (about 5000 grains of water in twenty-four hours). When from sclerotic disease the "erectile tissue" is unable to throw out the proper amount of moisture, the inspired air reaches the bronchi in a dry and unprepared condition, with the result of irritation of the mucous membrane of the lower respiratory tract, and the lighting up of other grave forms of disease.

Of remote symptoms, languor, nervous irritability, and a variously described feeling of abnormality "in the head," are the commonest. Asthma, or at least violent panting after slight exertion, is frequently complained of. Patients in whom the scroll-like bodies are represented by mere scar tissue have invariably, in my experience, been much below par, complaining of various neurasthenic indications, general ill health, and a great variety of symptoms—whether *post hoc* or *propter hoc* no claim will be made in the present paper, but the fact is a certainty. The conjunctivæ are usually injected, and when referred to an oculist

[1] See The Medical News, April 2, 1887.

gross eye changes are generally reported present—the relation of the two diseases is a question for the ophthalmologist.

The Eustachian tubes and middle ears are always involved in prolonged cases of this disease; impairment of hearing, tinnitus aurium, aural vertigo, and what may be called ear malaise, are very frequently complained of, and aural sclerosis, with extreme deafness, is one of the results of this disease in some cases. The glossal papillæ are enlarged and diseased, and dyspepsia is a most common concomitant. Mental symptoms have been noted by many observers: my experience has led me to believe them always dependent on the secondary ear lesions; where deafness and tinnitus have not appeared the mind will be uninfluenced. Lastly, sleep disturbances and insomnia, whatever relation they may bear to the nasal lesions, are of the commonest occurrence in this disease.

The special *treatment* of this form of intra-nasal inflammation has been greatly neglected; many writers claim to have *cured* this condition. I am aware that some gentlemen have also "cured" hepatic sclerosis and gastric carcinoma. But to my mind the reproduction of so highly organized a tissue as that of the nasal turbinated bodies, when totally destroyed by fibroid changes, seems a miracle worthy of Buddhist adepts, and totally impossible to accomplish by any means the technique of which has been described in less occult lore.

Although a cure of sclerotic rhinitis is a result impossible for the average rhinologist to obtain, yet a great deal can be done by careful and prolonged treatment, even in the worst cases. Comparative comfort may be secured, the disease practically arrested, and the remote results held off for an indefinite time.

The treatment may be divided into medical and surgical measures. The use of "alteratives" in spray is of great value; the sulpho-carbolate and the iodide of zinc; solutions of thymol or of "Listerine;" and Boulton's solution have proved the most valuable in my hands; they must be applied with skilful and thorough technique, at first daily, and toward the end of the four, ten, or fourteen months of treatment, once a fortnight. The careless, awkward douching of the nasal cavities, by means of a "perfume atomizer," so often witnessed, is totally without value, not infrequently hurtful, and quite unworthy the scientific technologist.

The action for good of these and similar medicines in this stage of nasal catarrh is partially due to their antiseptic and mechanical, as well as to their stimulant properties. Their first action, if properly used, is to cleanse mechanically and render antiseptic the nasal chambers; secondarily, the bloodvessels are so affected that the local blood supply is increased, the whole tone of the turbinated bodies being thereby improved. The mucous glands are also stimulated to throw off the pro-

liferated cells and abnormal mucus which clogs them, and the condition of the nasal cavities becomes for a longer or shorter period more nearly normal. More energetic stimulation is frequently called for; Seiler's iodine solutions, and tincture of myrrh diluted with glycerine to suit the individual case, are perhaps the most valuable; both are to be applied with the cotton tuft and carrier under full illumination and inspection. Mechanical stimulation, by means of cautious *curetting* of the papillomatous turbinated mucous membrane, especially of the post-nasal region, is of undoubted value. For some eighteen months I have used it as a routine measure with decided benefit. I can find no mention of its use in rhinological literature.

The faradic current applied with the positive pole in contact—by means of a suitable electrode—with the diseased turbinated body, is a very useful "alterative." Its use calls for the most thorough care and judgment; the weakest secondary current obtainable from the ordinary office battery, as usually used, is frequently too powerful, irritating, and injurious; a rheostat may be required, or the current may be regulated by only partially immersing the zinc element.

Operative surgical treatment is very rarely called for in nasal sclerosis. If the middle scroll be enlarged and jammed, as previously described, pressure must be relieved by cautious destruction of the superabundant tissue, by chromic acid (which I usually prefer), with the galvano-cautery knife, or with the Jarvis snare. Care should be taken to remove no more than is necessary to relieve pressure, the tendency of this disease progressively to destroy turbinated tissue being never lost sight of. Myxomatous degeneration of the middle turbinated calls for special measures; chemical or galvano-cautery is inadmissible, as they must be used so vigorously that a dense, contracting scar results, which is anything but favorable to the course of the disease. The snare can seldom be satisfactorily used, owing to the position and sessile, elastic, and slippery nature of the growth. The writer's, or some similar cutting forceps, is the best means of reducing the growth, small pieces being gnawed off until all myxomatous tissue is removed. It is my habit to treat the stump with a strong glycerite of iodine.

Enchondrosis of the septum narium may incidentally require removal, for the technique of which the reader is referred to the classical paper of Seiler; they bear no direct relation to nasal sclerosis. Nasal polypi may be found, and call for operation by recognized methods. The region of the pharyngeal tonsil will call for appropriate treatment, which need seldom, if ever, be operative, the post-nasal atomizer and applicator being usually sufficient to control the symptoms. Various dilutions of fluid extract of eucalyptus, applied by the post-nasal applicator, have given the writer great satisfaction in controlling the constant dribbling from the diseased glands, plus the routine treatment already

outlined. The pharynx, larynx, and bronchi will require sedative therapeutics.

The constitutional treatment is, of course, of great importance; medicinal tonics are frequently valuable, but good hygiene with scientifically regulated outdoor exercise is of more importance. Where the patient is able to reap the benefits of climate change, the less elevated regions of the Adirondacks, the Maine woods, and similar "spruce areas," are recommended for the summer; and the highlands of the Carolinas, or, better, the plateau of Mexico, about Orizaba, are advised for the winter season.

By no method known to me, or described in medical literature, can any rhinologist hope to keep his patient permanently free from symptoms by any one course of treatment in the climate of our Atlantic States. Cases must be seen at intervals—certainly as soon as warned by any return of the old symptoms—if they are to continue comfortable. My own practice is to treat cases of nasal sclerosis, for a period varying from four or five weeks, to twice as many months, until all important symptoms subside, and then instruct them to return at least once a month, or to report immediately if they suffer from symptoms of a "cold;" attacks of acute coryza, if allowed to run their course, having a most injurious effect on the course of the nasal disease. Of course, but a limited number of patients can be induced to follow so laborious a course of treatment, but the physician cannot conscientiously offer any better alternative. Nor can the victim of advanced intra-nasal sclerosis look forward, without treatment, in our climate, to a more favorable issue than impaired hearing, injured voice, bronchial disease, and much vitiated general health.

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LACERATIONS OF THE KIDNEY, WITH A NEPHRECTOMY.

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A contusion of the kidney sufficiently severe to produce hæmaturia is, I think, of frequent occurrence; but a contusion with a laceration extensive enough to result in extravasation of urine into the perinephritic space, and without external wound, is a comparatively rare injury.

The history of the following cases may be interesting, as illustrating the progress of such cases.

Case I.—On October 24, 1875, William P., aged fifty-six years, a carpenter, fell a distance of six feet, striking with his right lumbar region

the end of a beam. The shock was profound and continued for thirty-six hours. Bloody urine was discharged from the bladder. There was no external evidence of injury until seven days after this time, when the discoloration of the skin indicated extravasated blood. On November 7th, fourteen days after the injury, a tumor was observed in the right loin. It rapidly increased during the 7th. I saw him, in consultation, on the evening of the 8th of November for the first time. His pulse was 130, skin cold, eructations constant, and vomiting frequent. The tumor was incised and a bloody fluid discharged. The cut in the sac was not sufficiently free, and the patient died November 14th.

The autopsy revealed a tear along the middle portion of the anterior surface of the kidney, which extended through one-half the substance, and there was a complete detachment of the lower third of the kidney. The bloody urine, which formed the tumor in the lumbar region, was retroperitoneal.

CASE II.—On January 10, 1883, J. C., a teamster, aged thirty years, fell from his wagon, striking on a pile of stones. Shock was profound and continued for five days. Urine was bloody for several days. There was no external wound or contusion. On the 15th of January a fluctuating tumor was observed, extending from the ilium to the ribs. This was rapidly absorbed, and had nearly disappeared by the 20th instant. In May he was entirely well.

In this case laceration of the kidney, sufficient to produce perinephritic effusion, was probable, but could not be certainly established.

CASE III.—J. C., aged five years, a bright, healthy boy, fell from a carriage May 16, 1888. He asserts that a wheel of the carriage passed over him. He was able to get up and walk, but was carried into a physician's office. I saw him an hour after the injury. Pulse weak; skin cool, but not moist; he was pale and nauseated. There were no abrasions about the right lumbar or hypochondriac region, though tenderness was marked in the anterior portion of his right side. The urine was quite red with blood, but no clots passed. The stain of blood gradually disappeared during the first three or four days. Shock was prolonged for nearly thirty-six hours, though not at any time dangerous. The temperature curve during the first fifteen days was irregular, but marked 98.2° to 101.8° as extremes. On the sixteenth day the temperature was normal, at which point it remained until the twenty-sixth day, except for a rise of a degree on the twentieth and twenty-first days. During this time, with temperature at or near normal, there developed a swelling in the right lumbar region, which rapidly increased during the twenty-third and twenty-fourth days. This fluctuating tumor was aspirated on the twenty-fifth day, and twelve ounces of clear straw-colored fluid were withdrawn. This fluid was apparently urine, and contained urea.

Fever developed on the 26th. The swelling again appeared, and it was incised and freely drained the same day. The incision for drainage was a free one, and the sac and kidney were well exposed.

The kidney formed part of the anterior wall of the sac. The peritoneum had been lifted forward. There was a superficial laceration of the kidney structure extending from the lower posterior border obliquely upward to the pelvis of the kidney. It seemed to disappear in the beginning of the ureter at this point. The kidney appeared a little enlarged.

It will be observed that the fluid tumor developed rapidly during the

two or three days preceding the incision and drainage. The urine which passed through the natural channel prior to the drainage of the right kidney was normal in character and quantity. There was a slight excess of mucus, but no albumin or blood, after the first few days. An accurate measurement of the quantity each day was not taken. The discharge through the lumbar incision was free, with a moderate fluctuation in quantity. It contained a few pus corpuscles and some excess of mucus, but otherwise appeared to be healthy urine. The discharge of urine from the left kidney was, during this time healthy, and averaged about ten ounces a day. The drainage tube was removed on the fifteenth day after the incision was made, but the flow continued uninterruptedly until nephrectomy was performed on July 5th, the fifty-first day after injury.

During this period of waiting, between the exploratory incision with drainage and the final operation of nephrectomy, the patient's general condition was good, except for the irregular, and sometimes violent fever. The temperature varied without apparent reason from normal to 104°, with an abrupt rise and fall. His appetite, with occasional interruptions, was good from the beginning to the end of his sickness. He, however, was losing flesh, and growing weaker. Nephrectomy was thought desirable, because: First, there seemed to be a complete obstruction of the ureter, as proven by the healthy urine passing through the bladder. Second, the urine from the cut was of low specific gravity, though abundant in quantity, and contained pus with an occasional granular tube cast; there was a slight increase in the size of the kidney, or a thickening about it. Third, the continued irregular fever was exhausting the patient. There was no burrowing of pus, no sinuses, except the short direct free one between the kidney and the external wound.

July 5, 1888, the patient, with a temperature of 103°, was subjected to nephrectomy. The first incision, made for exploration and drainage, was again opened and extended. This made our primary incision an oblique one, extending from the rib to the anterior portion of the crest of the ilium. This was further extended anteriorly along the margin of the ribs, so that the incision was a double one, with the angle of junction at the margin of the ribs and posteriorly. The kidney was enlarged and enveloped in a thickened capsule. It extended high up and forward under the liver, but it was exposed, and, without great difficulty, enucleated, and partially delivered before ligating the pedicle. The pedicle was ligated with a silk ligature, which included the ureter and the vessels. The temperature of the patient at the close of the operation was normal, but in eight hours it rose to 102°, though on the morning of the second day it again fell to 98.4°, and remained near that line until patient was well.

The progress toward recovery was uninterrupted. The wound, except in the track of the ligatures, healed by first intention. The ligatures came away on the thirty-third and thirty-fifth days. The patient gained health during this time; recovery now seems to be perfect. The urine passed through the bladder on the day of the incision, with drainage of the perinephritic sac, was six and one-fourth ounces. For the next thirteen days it averaged ten ounces; but there were two successive days when it dropped to six and seven ounces respectively. During the next succeeding ten days—that is, the next ten days preceding the extirpation

of the kidney—it averaged seven ounces. A gradual increase began after nephrectomy. During the ten days succeeding the operation the average secretion was 10.6 ounces. On October 10, 1888, he passed twenty ounces of urine, specific gravity 1020, no albumin or sugar or casts, and it contained eighteen grammes of urea. This specimen was examined by Dr. Bond, of Richmond, Ind.

In reviewing this history we find that the bladder was not at any time irritable. The secretion of urine for three days after the injury was bloody. Then followed twenty-three days during which the urine appeared in quantity and quality normal, except that there was an occasional excess of mucus. The sudden development of the fluid tumor in the lumbar region was, I suppose, due to an obstruction of the ureter at some point below the original injury. The steady flow of urine of low specific gravity from the side, and the absence of any disturbance of the bladder or of abnormal urine thus obtained, led me to believe the obstruction complete and probably permanent. It was, also, a good evidence of the healthy condition of the left kidney. There was no evidence in the clinical history to lead us to believe that the injury to the kidney or ureter was being repaired by nature's efforts.

The urine from the injured kidney uniformly contained albumin, and was of low specific gravity, with a limited amount of pus. Occasionally granular casts were formed. A permanent urinary fistula seemed probable, and the inflammation of the kidney, with the irregular fever, rendered delay dangerous. The drainage was good and the granulation surface exposed to the urine was very limited in extent. The kidney, when removed, was found to be inflamed and enlarged. It had numerous hard nodules developed in the cortex. I was not able by the specimen to demonstrate laceration of the ureter, though it is to be inferred.

The microscopic examination by Dr. Hartman showed that there was parenchymatous degeneration of the kidney, with opacity of the tissues and swelling. Hemorrhagic infarctions were numerous.

Nephrectomy for traumatism has been reported by Rawdon, Marvard, Brandt, Cartwright, Bruns,[1] and by De Forest Willard.

The first case here related might have been saved by a nephrectomy, if the condition had been properly diagnosticated. The second one recovered without positive evidence of extensive laceration of the kidney tissue. The third recovered after the removal of the kidney. The peritoneum was not torn in either case, though extensive laceration of the kidney substance was present in two. The presence of a chronic hydronephrosis, or pyonephrosis, would render a contusion or compression of the kidney more likely to be complicated by peritoneal injury.

[1] See Greig Smith's Abdominal Surgery, second edition, page 544.

Even if the peritoneum was uninjured, the retroperitoneal effusion from the laceration of such a kidney would excite a more immediate and violent inflammation.

It will be observed that in the two cases in which the history is complete, the fluid tumor in the lumbar region was not observed until the fifteenth and twenty-fourth days, respectively, after injury. Yet I think it probable that the point or points of injury, through which the urine escaped, were present from the beginning. The ureter was, however, permeable, and with but little resistance to the flow of urine, through its normal channel, the urine was very slow in dissecting its way into the perinephritic tissue.

Case II., which was under my observation from the beginning, showed at the end of the first week a slight thickening about the pelvis of the kidney, which remained small, difficult to outline, and rather hard in consistency until the twenty-second day. The late appearance of the tumors, their size and rapid development, indicate that it was not until the ureter was obstructed that the distensive force of the urine was sufficient to force its way into the connective tissue spaces and loosen the peritoneum from the abdominal wall, thus forming a sac as a reservoir for the urine. The obstruction of the ureter was probably made complete by the presence of a plug of mucus, or the deposit of some of the salts of the urine, from the vitiated fluid passing along this channel.

An ulceration in the pelvis of the kidney at some contused spot would hardly account for the sudden development of the tumors, unless it was also assumed that the ureter was obstructed simultaneously.

The quantity of the urine secreted by the injured kidney was, at first, no doubt limited. Its character changed as the tissue of the kidney became inflamed.

The effusion of urine into the perinephritic cellular tissue did not excite immediate local reaction. It was present in Case III., when the boy was free from fever; was up and about, moving around with moderate comfort. There was no decomposition of the fluid, and no marked inflammation of the walls of the sac when the fluid was drawn, and yet the larger part of the effusion had been present in the connective tissue for three days, and probably there had been some urine about the pelvis of the kidney in the connective tissue for three weeks.

The irregular, but continuous, fever which followed the free drainage and antiseptic conditions maintained in Case III., confirmed me in the opinion that the fever was largely due to the changes going on in the kidney structure. The microscopic examination corroborates this theory.

The clinician's history of such injuries is limited, but it appears to indicate that:

1st. A contusion, without serious lesion of the kidney when accompanied by a perinephritic hemorrhage, may present all of the immediate

diagnostic symptoms of rupture. On the other hand, a destructive laceration of the kidney substance may be slow in developing characteristic symptoms. It appears from the records that there is ample time for a thorough investigation of the individual case before operative interference is demanded. A rupture of the peritoneum must be an exceedingly rare complication in such injuries when the kidney is healthy.

2d. The dangerous conditions which may develop during the progress of such cases are shock, septicæmia, cystitis with extension of inflammation through the bladder to the other kidney, and nephritis of the injured organ. Suppressions of urine from both organs may develop during the presence of one or more of these conditions.

A destructive unilateral nephritis may develop in the contused organ, as was demonstrated in Case III., from whom I removed the kidney. This may occur even after the grosser lesion of the distinct tear in its substance has been repaired.

3d. Cuts and lacerations of the kidney substance will frequently heal readily, unless the ureter becomes obstructed; but a laceration in the pelvis of the kidney or the ureter is much more likely to leave an intractable fistula. An incision of the superficial parts with an inspection of the injured organ and free drainage is to be recommended before extirpation is resorted to. The efficiency of the compensatory action of the remaining healthy kidney seems to be well established by anatomical and clinical researches.

The lumbar incision offers many advantages, and is surely the safer method. It can be most readily converted into an incision for an entrance into the peritoneal cavity, and when so utilized it offers easy access to the kidney, better, perhaps, than does an incision in the median line.

EXAMINATION OF THE THROAT AND NOSE OF TWO THOUSAND CHILDREN TO DETERMINE THE FREQUENCY OF CERTAIN ABNORMAL CONDITIONS.

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In February, 1888, Dr. Franklin Hooper, of Boston, read a paper before the Laryngological Section of the New York Academy of Medicine on adenoid growths in the vault of the pharynx. In the discussion which followed a great diversity of opinion prevailed as to the frequency of this disease in the children of this city and vicinity; some thinking

that as many as two or three per cent. were sufferers; while others, that, according to their experience, it was less than one per cent. One speaker believed it to be a rare disease.

To settle this point, which is certainly one of importance, I undertook, associated with Dr. Andrew H. Smith, the examination of these children, hoping that some definite opinion might be arrived at. While making the examination we took the opportunity of studying the condition of the other parts of interest in this region. Of the 2000 children, 955 were taken from the New York Juvenile Asylum, 176th Street and Tenth Avenue, by the kind permission of Mr. A. G. Agnew and Mr. E. M. Carpenter and Dr. Baruch, the attending physician; 645 from Grammar School No. 49, by permission of Mr. A. G. Agnew, and Mr. Pettigrew, the Principal; 200 from the Half Orphan Asylum in East 10th Street, and the remaining number from various sources.

In the entire number the following abnormal conditions were found:

Adenoid growths	60
Enlarged tonsils	270
Deviated septa	330
Spurs on septa	150
Hypertrophy of inferior turbinated bodies	260
Hypertrophy of middle turbinated bodies	161

This shows that 1231 were suffering from some anatomical abnormality, and usually with its accompanying symptoms of respiratory obstruction and catarrh. I will only give a short sketch of the observations made in each condition.

Adenoid Growths, or Post-nasal Disease.

It has been shown that 60 suffered from this disease; of the entire number, 1292 were boys; 49 of whom had adenoid growths; 708 were girls, 11 having the disease, scarcely more than half in proportion to the number occurring in the boys. The ages varied from four to sixteen; few cases occurring under six years or over fourteen; the largest number being in children between eight and ten years, the frequency increasing toward puberty and decreasing after it. Condition of life and surroundings seem to have no effect on the occurrence of this disease. The children from Grammar School No. 49 and others, taken from the better classes, suffered equally with those in the asylums. Two classes of cases were observed sufficiently different in appearance and symptoms to allow of separate description.

In the first class the growths were irregular red masses, varying in size from that of a pea to that of a small cherry, and having a tense glistening appearance. They occupied chiefly the vault of the pharynx, and resembled the glandular tissue of this region much hypertrophied.

Thirty-five cases of this kind were observed. The growths were numerous, and hung down from the vault so as to fill the post-nasal space. They secreted a copious, thick yellow mucus, which hung from and around the growths, and in some cases large desiccated scabs covered the masses. The vocal sounds were thick and dead in character, and the nasal respiration much impaired at times, while at other times it seemed comparatively free. None had the high palatine arch and pigeon breast described by some observers. There was no case of decided deafness, although 10 had slight impairment of hearing. All these children would be classed as of the scrofulous type, and, I think, this disease is largely due to diphtheria, scarlet fever, and measles, occurring in such children, whose mucous membranes and glands, if once inflamed, show very little recuperative power. Throat complications are more severe in this class when suffering from diphtheria and scarlet fever; in place of returning to its natural condition, the mucous membrane remains swollen and inflamed, and after a short time that which was only the result of acute inflammation becomes organized tissue. This form, though differing anatomically from the other class of post-nasal growths, requires the same treatment.

Second Class.—The growths were small, pale pink or gray in color, and, in some cases, presented a fringed appearance; while, in others they were flat and round, and occurred singly or in clusters. 25 of this class were observed: 19 of which had only a moderate amount of the growth, confined chiefly to the vault and around the Eustachian tube. The remaining 6 were marked cases of the worst type of this disease. The growths were numerous, sessile, and long, and completely packed the post-nasal space, and extended in a chain-like formation down on the sides of the pharynx; and seemed continuous with the tonsils. The tonsils were hypertrophied in all the 6 cases. In 1 case not quite so severe as the others, the growths occupied the posterior margin of the septum and the margins of the posterior nares. All of these children had complete nasal obstruction, the "dead" voice, high palatine arch, small nostrils, and pigeon breast, and also the restless, irritable condition described by all writers on this subject. The 19 who were affected only in a moderate degree presented only moderate symptoms, and only 2 had impairment of hearing. All of the 6 severe cases had impaired hearing. One child could hear only the loudest sounds. The mucus secreted in these cases was white and frothy in character, and very copious. In this class the disease, I think, is often hereditary, and occurs in several members of the same family.

The examination of the post-nasal space was made chiefly with the mirror, and in the public institutions afforded a remarkable proof of the effect of fear and discipline on the reflexes. The children felt that they were carrying out a command, and although afraid, their discipline was

so good that they made no objection or efforts of resistance. This condition seemed to paralyze their faucial muscles, and allow the soft palate to hang away from the posterior pharyngeal wall, and thus gave an excellent view of the post-nasal space. This is in marked contrast to the condition in which the physician finds the child who comes to him in private practice, who, if averse to being examined, has little difficulty in showing that it is master of the situation.

In some cases the formation was such as to leave but little space between the soft palate and the posterior wall of the pharynx. In these cases, by causing the patient to say "ah," the soft palate was drawn upward and backward, and if the mirror was in readiness, when the palate relaxed and fell forward, a little anterior to its normal position, it allowed of a good momentary view. By repeating this once or twice a very satisfactory examination can be made. In twenty of the children the finger had to be used for diagnosis.

A good light is of the greatest importance, and I obtained the best views with a magnesium lamp, loaned me by Messrs. White & Son, of this city. But this could not be used for any length of time, as the light was so bright, that after examining eight or ten cases, I would be unable to see anything distinctly for at least an hour. For short examinations, however, where a bright light is of importance, nothing equals it.

Hypertrophy of the Anterior Part of the Inferior Turbinated Bodies.

This was confined chiefly to the mucous membrane. Only the most marked cases were noted; of these there were 260. In 102 the hypertrophy was bilateral and pressed the septum on both sides; in 140 it was unilateral, occurring chiefly on the left side, very large, often occluding the nostril and pressing the septum to the opposite side; in 18 cases the hypertrophy of the inferior and middle turbinated bones was so great as to occlude completely the nares, and on anterior rhinoscopic examination gave the appearance of two red masses filling the nasal cavities. If a diagnosis should be made relying only on the symptoms, without a rhinoscopic examination, they would all be pronounced cases of adenoid disease of the worst type. This shows how necessary it is to make a thorough examination in every case before introducing the post-nasal forceps. There are some surgeons who think mouth-breathing and dead voice sufficient to warrant them in operating without any further examination. As the result of this, I have several times seen the post-nasal space cleared of all its glandular tissue and not a little of the mucous membrane without any relief to the patient.

This condition of hypertrophy of the inferior turbinated bodies occurs

with equal frequency in males and females, but is rare in very young children. Colored children and Italians are remarkably free from it.

Hypertrophy of Middle Turbinated Bodies.

161 had this condition; in 51 it was bilateral, and 110 unilateral. In 2 cases the mucous membrane and bone were so much enlarged that the tumor touched the floor of the naris. The bilateral cases presented chiefly an hypertrophy of the mucous membrane, but in the unilateral there was mostly a bony hypertrophy, and in 75 of these cases the cartilaginous septum was deviated to the opposite side; its concavity corresponding to the hypertrophied middle turbinated body. No child presented any evidence of reflex symptoms, and those cases of hay fever, reflex headache, and cough, which are relieved and sometimes cured by cauterization, or by removing part of the middle turbinated body, must be due to some condition of later development, as certainly, if hypertrophy or pressure alone could cause these reflex diseases, we ought to have had them with great frequency in these cases.

Deviated Septum.

330 examples occurred; 270 presenting deviations of the cartilaginous, 50 of the bony septum, and 10 of both bone and cartilage. Of the cartilaginous deviations, 148 were to the right, and 122 to the left. Of the bony, 35 to the right, and 15 to the left. The bone and cartilage deviations were S-shaped. The cases of deviation were 50 per cent. more numerous in boys than in girls; 25 per cent. gave a history of injury, and the same number were due to hypertrophy of the middle turbinated bone. Only 10 deviations of the cartilage were observed in children under the age of seven, and they gave history of injury. In deviation of the bone, the children were all over eight. In 30 per cent. the obstruction was sufficient to impede respiration; and in all cases it increased the nasal discharge.

From these observations it would seem that deviation of the cartilage is rare under seven, and that when occurring, it is due to traumatic causes. It is well established that deviations of the septum occur in about 75 per cent. of adults examined, and this, of course, must be due to some cause which does not affect the very young. I think a large percentage is due to one of four causes:

First. Traumatism.

Second. Hypertrophy of middle turbinated body, or some other source of unilateral pressure.

Third. Hyperplasia from long-continued irritation.

Fourth. Difference in period of development of the bones of the face and septum.

Spur on Septum.

Only the part of the septum visible through the anterior nares is considered under this heading. 150 were observed; 100 on the right side, and 50 on the left. The largest number were situated at the anterior inferior angle of the cartilage, close to the floor of the naris, and varied from one-quarter of an inch to an inch in length; were shelf-like in appearance, and concave on the under surface. 25 of the older children had a long ridge starting from the anterior inferior angle of the septum and running upward and backward from one to one and one-half inches. They were very large, often occluded the nasal passage of that side, and caused frequent attacks of epistaxis. I think spurs on the septum are often caused by slight injury to the nose, and, although small at first, grow rapidly.

Enlarged Tonsils.

Only those presenting very considerable enlargement were noted. Of these, there were 270; 183 being of both tonsils, and 87 of one only. 160 cases were in males, and 110 in females. 7 cases were of extreme enlargement, preventing a view of the posterior wall of the pharynx and causing difficulty in introducing the finger into the post-nasal space. 6 cases had great impairment of hearing, and all breathed with the mouth open, to a greater or less extent, and had other symptoms of obstruction.

Résumé.

I think we may fairly infer from these examinations that enlarged tonsils and adenoid growths are the only anatomical abnormalities that could be classed as belonging to very early life. The other abnormal conditions are acquired, usually after the age of six years, increasing rapidly with each succeeding year until puberty. All social classes are liable to them at about equal proportions, and at the same age. Males suffer more frequently than females, probably owing to greater exposure to the causes which produce catarrhal congestion and inflammation. In glandular organs it is but a step from congestion to hyperplasia, and an increased afflux of blood being once established, a slight irritation will serve to keep it up, and hypertrophy is the necessary result.

The increased number after six years seems to be due to several causes:

First. More children suffer after that age from scarlet fever, measles, diphtheria, whooping-cough, and a few other diseases of childhood which are specially liable to produce inflammatory conditions of the throat and nose.

Second. After this age children are more exposed to falls, blows, and accidents of various kinds. They are given more liberty to run about and take care of themselves, and mingle with other children. It is well known that the nose is a favorite place for the receipt of blows, great and small, which are incident to the pains and pleasures of the every-day life of most children.

Third. Climate certainly has an important influence on the mucous membranes. Persons coming from abroad to New York and other parts of America, soon complain of catarrhal symptoms of the throat and nose, which had been unknown to them before. On examination, the mucous membrane of the nares and throat is found congested and hypertrophied to a far greater extent than is observed in adults and children in England and on the continent.

Fourth. Hypertrophied tonsils and all forms of nasal obstruction produce catarrh by their interference with the respiration and circulation. It is also probable that they are the cause of the hypertrophied condition of the mucous membrane in many cases of the children examined.

It would seem that persons having the oversight of children should have them examined between the age of six and fourteen years, to ascertain the condition of the throat and nose. It is not the throat and nose alone which suffer from these abnormal conditions, but many other ailments, especially of the pulmonary, digestive, and nervous systems, can be traced to prolonged nasal obstruction and irritation.

ALVEOLAR SARCOMA OF TONSIL.

By William M. Gray, M.D.,
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October 20, 1887, Charles M., aged six years, suffering with slight soreness of the throat, was brought to Dr. P. R. Hardee, of Moriah, N. C., who upon examination found a small and insignificant-looking ulcer in the centre of the right tonsil; it was seemingly so trivial, and caused so little inconvenience, that no treatment was deemed necessary.

January 22, 1888, Dr. Hardee was again consulted; the examination this time showed considerable enlargement of the tonsil, unattended by inflammation, with no pain in deglutition, and the entire disappearance of the ulcer. Dr. Hardee, considering it a case of simple hypertrophy, treated it accordingly, prescribing tincture of iodine to be applied three or four times each day.

The patient was now visited daily until the 26th, no change being observed. On January 28th, the tonsil began to slough, forming a waxy concretion on the surface, and the breath became very offensive. Feb-

ruary 1st, the patient had a paroxysm of dyspnœa, and from this time on through the whole course of the disease these paroxysms occurred, especially during sleep, when it became necessary to awaken him.

Dr. Hardee now took the patient to Dr. Hunter McGuire, of Richmond, Virginia, who removed a small piece of the protruding tonsil, and sent it to the writer for diagnosis.

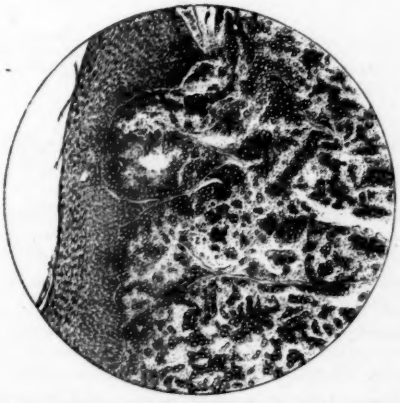
During February, the general condition of the patient remained good, but the appetite gradually failed until February 25th, when there was a respite lasting some days, and giving every indication of recovery.

During the progress of the disease three more such respites occurred, but were less marked than the first. By March the complexion had become cachectic. At no time was there any pain in deglutition, but during the latter stages of the disease the patient was unable to swallow anything but liquids owing to the size of the tumor, which externally was equal to that of the boy's fist.

May 6th, the tumor had involved the surrounding tissues, infiltrating the gums, and spreading across the soft palate to the opposite tonsil, and including it. After the gums became involved, frequent paroxysms of pain were experienced, which, however, were instantly relieved by painting with a five per cent. solution of cocaine. The child died June 4th. No post-mortem being allowed, it was not known whether the tumor gave metastases to the thoracic and abdominal viscera.

A microscopical examination of the small piece of tumor removed by Dr. McGuire revealed the following: Immediately below the epithelial layer covering the tonsil occur groups of round cells separated by a delicate reticulum of fibrous connective tissue (Fig. 1); the reticulum,

FIG. 1.



Section transverse to surface of mucous membrane of tonsil, showing groups of cells and reticulum. × 126, drawn from photomicrograph.

besides separating the cells into groups, frequently extends as a fine meshwork between the individual cells. The reticulum is composed of fine connective tissue fibres, with numerous spindle-cell nuclei. The round cells composing groups in the alveoli are double the size of the lymphoid

cells forming the normal structure of the tonsil, and are composed of a cell wall with finely granular protoplasmic contents, and contain from one to four nuclei, the nuclei containing one or more nucleoli. Separating the fibres of the reticulum, and frequently extending into the cell growths are numerous bloodvessels of varying sizes. The bloodvessels are without walls, and are usually outlined by a single layer of spindle cells (Fig. 2).

FIG. 2.

Same section, showing round cells with multiple nuclei, connective tissue reticulum, and bloodvessel without wall. × 300, drawn from photomicrograph.

In examining the reported cases of sarcoma of the tonsil, the following were found, from which a brief extract is given of the age and sex of patient, and character of the tumor.

Case I.—Patient, male, aged sixty-one years. Lympho-sarcoma of left tonsil, giving general constitutional infection. Moxon, *Trans. Path. Soc. London*, 1869, vol. xx. p. 369.

Case II.—Patient, male, aged seventeen years. Lympho-sarcoma of left tonsil, giving general constitutional infection; death from suffocation. Milani, *Gazetta Medica Italiana-Lombardi*, Milano, 1870, vol. xxx. pp. 17, 18.

Case III.—Patient, male, aged fifty-three years. Lympho-sarcoma of right tonsil. Brown, *Trans. Path. Soc. London*, 1878, vol. xxix.

Case IV.—Patient, male. Sarcoma of right tonsil; character of growth not given. Case of extirpation. Genzmer (Halle), *Verhandl. d. deutsch. Gesellsch. f. Chir.*, vii. 22–26. Berlin, 1879.

Case V.—Patient, male, aged sixty years. Spindle-cell sarcoma of left tonsil, giving general constitutional infection. No death reported. Weinlechner, *Wien. med. Presse*, 1882, xxiii. 1389.

Case VI.—Patient, male. aged sixty years. Spindle-cell sarcoma of left tonsil. Weinlechner, *Allg. Wien. med. Ztg.*, 1882, xxvii. 466.

Case VII.—Patient, female, aged seventy-four years. Round-cell sarcoma of right tonsil; first appearance two months previous to admission to hospital.

Death from general constitutional infection. West, *Trans. Path. Soc. London*, 1882, xxxiii. pp. 331–334.

Case VIII.—Patient aged seventeen years. Lympho-sarcoma of left tonsil including pharynx. Death in fifteen months from first appearance.

Case IX.—Patient aged seventeen years. Lympho-sarcoma of left tonsil. Tumor in five months grew to size of goose egg, and extended to right tonsil. Death in one year from first appearance.

Case X.—Patient, male, aged sixty-six years. Lympho-sarcoma of left tonsil. Case of extirpation, with no reported recurrence.

Case XI.—Patient, male, aged twenty-five years. Lympho-sarcoma of left tonsil. Tumor of rapid growth, spreading to right tonsil and abdominal organs.

Case XII.—Patient, male, aged sixty years. Lympho-sarcoma of left tonsil, giving general constitutional infection.

Case XIII.—Patient, female, aged thirty-five years. Lympho-sarcoma of right tonsil. Jardon, 8vo., Bonn, 1883.

Case XIV.—Patient, male, aged seventy-two years. Round-cell sarcoma of right tonsil. First appearance of tumor three months previous to admittance to hospital. Case of extirpation. Pollard, *Trans. Path. Soc. London*, 1886, vol. xxxvii. p. 221.

Case XV.—Patient, female, aged seventy-four years. Lympho-sarcoma of right tonsil. Death seven months from time of first appearance of tumor. Barker, *Trans. Path. Soc. London*, 1886, vol. xxxvii. p. 223.

Case XVI.—Patient, male, aged seventeen years. Round-cell sarcoma of left tonsil. Death from general constitutional infection eight months from time of first appearance of tumor.

Case XVII.—Patient, male, aged fifty years. Round-cell sarcoma of left tonsil. Croly, *Trans. Academy of Med. in Ireland*, pp. 161–164. Dublin, 1887.

Case XVIII.—Patient, female, aged sixty years. Round-cell sarcoma of left tonsil. Tumor of slow growth; two years' duration. Case of extirpation. Richardson, *Boston Med. and Surg. Journal*, 1888, vol. cxviii. No. 8.

ON A HITHERTO UNDESCRIBED NEUROSIS OF THE AURAL APPARATUS CLOSELY ALLIED TO CORYZA SYMPATHETICA.[1]

By John Noland Mackenzie, M.D.,

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In the course of an article on the "Respiratory Vasomotor Neuroses" read in May, 1886,[2] before the American Laryngological Association, I called attention to a condition of the aural apparatus closely akin to vasomotor coryza—a sort of "hay fever" of the ear, so to speak—

[1] Read before the American Laryngological Association at the first Triennial Congress of American Physicians and Surgeons, Sept. 18, 1888.

[2] See New York Medical Journal, Feb. 25, 1887, for a full statement of my views on this subject. See especially the article on "Neuroses of the Nose" in Wood's Reference Handbook of the Medical Sciences, vol. v. pp. 222 to 242.

and brought it forward in support of the doctrine which I hold concerning this class of neuro-vascular phenomena.

I have seen but one case of the affection I am about to describe, the details of which may be briefly given as follows:

Mrs. B., aged about forty-two, living in a distant city, came to Baltimore a few years ago, to consult me concerning a peculiar periodic affection of the ear, which had excited the interest of her physicians, but which had never been satisfactorily explained, and which came upon her every summer with such unerring regularity as to make life a burden to her for a definite portion of each recurring year.

Accustomed always to the good things of life, she had in later years been greatly reduced in circumstances and had experienced some of the acutest phases of domestic sorrow. She had met the call upon her mental and physical endurance with indomitable courage, but in the progress of time it had begun to tell upon her, and manifested itself in a weakened condition of the nervous system. She is not a nervous woman in the common acceptation of the term, but belongs to that class so common among our American women, which Beard, above all others, has so clearly differentiated from the purely hyperexcitable and hysterical.

The affection came on suddenly soon after her marriage in 1866, after a visit to the White Sulphur and Warm Springs in the mountains of West Virginia. There were no premonitory signs nor can she ascribe the affection or the suddenness of its onset to any particular cause. She could not say that she was in any remarkable degree affected by the sudden cooling and dampness of the atmosphere which often occur in those localities after the setting of the sun.

The disease commences, without premonitory symptoms, about the first day of June, with intolerable itching of the auditory canal. This may be preceded by a similar itching in the corresponding side of the throat in the region of the opening of the Eustachian tube; or both throat and ear may begin to itch at the same time. The itching is soon followed by swelling of the lining membrane along the whole length of the auditory canal. This diffuse swelling or engorgement rapidly increases until the meatus becomes nearly completely occluded. The surface of the swollen membrane is intensely sensitive to all sorts of local applications or irritants, but does not seem to be notably affected by the condition of the external atmosphere. This excessive irritability, which is particularly striking, prevents the employment of topical applications, but is occasionally relieved by the constant use of hot water.

Later on, symptoms of middle ear inflammation develop and give rise to deafness varying in degree. The Eustachian tube now becomes involved, as indicated by shooting pains from the ear to the throat in a line precisely corresponding to that taken by the tube in its passage to the pharynx, and also by direct rhinoscopic inspection.

During the period of swelling of the meatus it is impossible to get a view of the tympanum, but on one occasion, when the opportunity was afforded me of examining that structure, it was found slightly hyperæmic. The corresponding side of the nasal pharynx was also in a congested state.

The above symptoms last for a short while, when a profuse discharge

takes place from the auditory canal, which at the same time gives relief to the preceding symptoms. Some discharge also takes place into the throat, but this is inconspicuous in comparison with the external aural flux. She thinks that sometimes little swellings "like pimples or boils" are produced in the ear and that some of the discharge may come from them. A number of incisions into the swelling, made by her brother, a distinguished surgeon, have failed to detect the presence of pus, and, as they failed to give relief and seemed to aggravate the pain, were finally abandoned.

The affection only makes its appearance during the heated term and usually either in the month of June or the month of September. On several occasions, however, it has appeared in the months of July and August. It is always limited to one side, one ear being affected one summer and the other the next; or the same ear may alone suffer for several consecutive summers. During the winter-time she never suffers from ear trouble nor do her nose and throat show any signs of disease.

The almost daily paroxysms of the disease generally last for exactly four weeks, when they disappear as suddenly, and without premonition, as they came. One summer they passed away in two weeks.

She can, unfortunately, throw no light on the possible origin of the disorder, nor upon its exciting causes, except that the trouble, when once started, may be provoked or aggravated by various kinds of local irritants. During the paroxysms she becomes weak and irritable, and generally "out of sorts."

Nothing that she has ever taken for this trouble has in the slightest degree modified its course; but during last summer, which she spent at a well-known "hay fever resort," she was entirely free from her complaint for the first time in twenty-two years. The present summer (1888) she has spent on the seashore, chiefly at Narragansett Pier, and up to date (September 15th) has not had a return, though living in daily dread of its approach.

We have then a periodic affection coming on suddenly, only at a certain time of the year, characterized by a succession of paroxysms lasting a definite number of days and disappearing with the suddenness of its inception—an apparently inflammatory condition of the auditory canal (with possibly an occasional furuncular element), an inflamed or congested state of the cavity of the tympanum, and, finally, an Eustachian salpingitis—appearing with perfect regularity year after year and rebellious to all forms of seemingly appropriate treatment.

I call attention to it, in the first place, because it represents a diseased condition of the aural apparatus, as far as I know, hitherto unrecognized and undescribed. In the second place, the phenomena outlined above not only furnish additional evidence in favor of the doctrine which I have maintained concerning the rôle of the sympathetic in the so-called motor and neuro-vascular affections of the upper respiratory tract, but serve as a pregnant illustration of the law that "*the area in which the vasomotor reflexes occur will depend, other things being equal, on*

the seat of the local pathological process—on the localization of the area of peripheral excitability."

I have on several previous occasions spoken of certain conspicuous aural phenomena in connection with the sympathetic forms of coryza and directly related to them through the nervous system, prominent among which the enormously dilated and congested condition of the auricles and other vasomotor phenomena similar or analogous to those found in the external aural apparatus after section of the sympathetic in the neck. We have characteristic of the affection before us a group of symptoms referable to a distinctly circumscribed region which derives its vasomotor and trophic nerve supply in all probability directly through the otic ganglion. In sympathetic coryza the territory chiefly involved is the area in which the nerves from the spheno-palatine ganglion are distributed, whilst in the periodic affection of the conjunctiva analogous possibly to both the aural and nasopharyngeal affections the vasomotor supply is obtained through the ophthalmic.

The observation detailed above is, of course, an isolated one, and more extensive study of other cases must be made before we can arrive at its precise pathological significance. That it presents a striking analogy to certain neuro-vascular disturbances of the upper respiratory and ophthalmic tracts scarcely admits of a doubt. But even if not directly comparable or related to these latter, it is at least suggestive of a line of thought and method of observation by which our vision of this class of affections may be possibly broadened and which may lead to the establishment of the common kinship of a host of phenomena whose relationship has never been before suspected.

Above all, we should allow no opportunity to go by, however trivial and insignificant, to penetrate the veil which hides in darkness the pathology of the sympathetic nerve, and to approach more nearly the mysterious operations of that wizard force.

REVIEWS.

TREATISE ON THE DISEASES OF WOMEN. FOR THE USE OF STUDENTS AND PRACTITIONERS. By ALEXANDER J. C. SKENE, M.D., Professor of Gynecology in the Long Island College Hospital, Brooklyn, New York; formerly Professor of Gynecology in the New York Post-Graduate Medical School; Gynecologist to the Long Island College Hospital; President of the American Gynecological Society, 1887, etc. With two hundred and fifty-one engravings and nine chromo-lithographs. Pp. xiv. 966. New York: D. Appleton & Co., 1888.

THE appearance of another distinctively American treatise on gynecology is additional proof of the activity of our profession in this special branch. The present volume is essentially clinical in its scope, and bears worthy testimony to the ripe experience of a valued teacher. Originality in a special text-book is its highest recommendation, so that when we accord this quality to Dr. Skene's work we at once characterize it as an actual addition to gynecological literature. As a not unpleasing innovation, the reader will note that after every chapter several illustrative cases are introduced. This enables the author to dispense with a good deal of the ordinary trite matter on symptomatology, pathology, and treatment, and to present these topics in a strictly practical way. In this respect Dr. Skene wisely provides for the wants of the future medical student, whose instruction will unquestionably be largely clinical.

The general arrangement of the contents is as follows: First, congenital malformations; secondly, diseases of the external genitals (including injuries to the pelvic floor); then diseases and displacements of the uterus, affections of the ovaries, tubes, and perimetric tissues; and, finally, diseases of the genito-urinary tract.

Chapter I., on "Methods of Observation," is terse and practical; the important subject of the bimanual examination is dismissed with briefer mention than it deserves, but the omission is atoned for by a clear and intelligible description of the method of introducing Sims's speculum. There is a most commendable brevity in the number and description of instruments used in diagnosis; at the same time we cannot but note the conspicuous absence of such useful ones as the depressor and dull-wire curette.

Chapters II. and III., which treat of arrest of development, are almost entirely clinical. The author includes under this head various disturbances of menstruation, some of which can hardly be said to result from actual non-development of the sexual organs. We doubt if all the cases cited are "illustrative" of the pathological condition described.

"I consider flexion of the uterus as a deformity," says the author, in beginning Chapter IV., "and it certainly belongs to that order of

pathological conditions." Acquired anteflexion is touched upon rather lightly, slight reference being made to shortening of the utero-sacral ligaments in this connection. The obstructive theory of dysmenorrhœa is adopted. There is only a passing allusion to the distressing vesical symptoms, which are often of most importance to the patient. We hardly expected to find the anteflexion pessary commended in a modern text-book, since it is now so seldom used.

Chapters V. and VI., on diseases of the external genitals and vagina, are followed by a comprehensive discussion of the important subject of injuries to the pelvic floor, which deserves careful study. The reader will be struck at once with the fact that the author has worked out this difficult subject independently, and, having thoroughly grasped it himself, has succeeded in presenting the gist of the matter in a clear and intelligible manner. The descriptions of the operations for repair of the various lesions are excellent, the accompanying illustrations (notably Plates I. and II.) being unlike most others, in that they really assist, instead of confusing, the reader.

Fourteen chapters (pages 171 to 422) are devoted to diseases of the uterus, the first two treating of inflammatory affections. The remarks on intra-uterine medications are judicious. Subinvolution is treated quite briefly in comparison with the descriptions of this condition in former text-books, and very properly, since it is merely a result of other pathological conditions, and in no sense deserves to be enrolled among inflammatory affections of the uterus. "I have never," says the author, "observed any symptoms which were specially characteristic of imperfect involution." We must confess that the following chapter (XII.) on sclerosis of the uterus somewhat injures the good impression produced by the one on subinvolution, since the student may not only be involved in confusion in his attempt to distinguish between these two conditions, but he has presented to him as a pathological state what is simply the end-result of endometritis or metritis, and, as the author himself admits, is unattended by definite symptoms or physical signs.

Chapter XIV., on laceration of the cervix, is somewhat disappointing, as it does not receive quite so much attention as we would expect in an American treatise on gynecology. However skilful a surgeon may become in using a special instrument devised by himself, he should not teach that it is the only one with which an operation may be rapidly and neatly performed. The reader may possibly elect to use the ordinary curved scissors in denuding the edges of a lacerated cervix, instead of the hawk-bill variety so highly commended by Dr. Skene, but he will find no description of the operation except the author's method. Many beginners would be glad to know how to introduce silver-wire sutures, as well as silk. We agree with him in deprecating the use of daily vaginal injections after trachelorrhaphy, but regard as of doubtful value the introduction of a tampon.

Displacements of the uterus are included in two chapters, under the head "dislocations"—a term more appropriate to general surgery than to gynecology. The section on the treatment of prolapsus contains only a brief reference to operative measures; kolporrhaphy the author has abandoned as a useless operation. His objections to stem pessaries of the Cutter variety are sound. "By a careful and judicious use of the ring and the tampon," he affirms, "aided by the T-bandage to support

the pelvic floor, one can accomplish nearly all that can be done by these artificial supports."

In discussing the treatment of retroversion we are glad to note that the author comes out strongly in favor of Foster's idea of the mechanical action of pessaries. We are happy to find at last a teacher of gynecology who does *not* believe, or pretend to believe, that a retroversion pessary elevates the fundus uteri by making direct pressure upon it (see Fig. 153, page 321). If Dr. Skene would apply the same principle to the treatment of anteflexion, he would, perhaps, banish Thomas's and Graily Hewitt's instruments on grounds both theoretical and practical. Alexander's operation is not held in much favor. It is rather surprising that, while Polk's description of the operative treatment of retroversion with fixation is quoted at length (pages 324 to 328), no reference is made to hysterorrhaphy, an operation which deserves even more consideration, since there are at least a hundred successful cases on record, many having been reported by American surgeons.

The section on retroflexion is short and unsatisfactory. One looks in vain for wished-for details regarding the management of that *bête noir* of gynecologists—retroflexion with fixation.

We note as a praiseworthy new departure a separate chapter, entitled "Abuse of Pessaries," illustrated by several clinical cases.

Chapter XX., on hypertrophy of the cervix, contains some excellent cuts illustrating the author's method of operation (Figs. 166 to 170 inclusive). The following fifty pages, on fibroma of the uterus, embrace much that is of practical value, including a comprehensive section on electrolysis, from the pen of Dr. Jewett, of Brooklyn.

On page 398 we note as a minor blemish the use of the general term "carcinosis" as a substitute for "carcinoma." The chapter on cancer is marked by its fidelity to clinical facts, although the author occasionally confuses his pathology somewhat by describing scirrhous and medullary carcinoma and epithelioma of the cervix as if they were of equally frequent occurrence, whereas the latter is the growth which it is especially important for the student to recognize. The term "scirrhus" seems to be used rather loosely in some places. *A propos* of the differential diagnosis between so-called "erosions" and epithelioma, attention should have been called to the fact that the microscope constantly shows how indefinite is the line of demarcation between these two conditions; hence the practical deduction to amputate the entire cervix when there is any doubt in the mind of the operator. The section on treatment is good, except that a description of Freund's operation is superfluous in a recent text-book, it having been relegated to the heroic procedures of the past; a less condensed description of the different steps in vaginal hysterectomy would be more in order, an operation to which the author devotes but little space considering its importance and the amount of literature on the subject. The sections on cancer and sarcoma of the uterus exhibit clearly the different characteristics of the two conditions.

A separate chapter on the menopause (XXIII.) is another novelty in this work, which merits approval; its absence in text-books on gynecology has hitherto been noticeable. We have always held that the profession in general have a very imperfect knowledge of the "natural history of the menopause" (as Dr. Skene expresses it), and the influence of the climacteric upon morbid conditions of the pelvic organs. A number of illustrative cases are cited bearing on this subject.

Six chapters (XXIV. to XXIX.) are devoted to diseases of the ovaries, the first dealing with their anatomy and physiology, and the second with hyperæmia and acute and chronic oöphoritis. The writer prefers the hybrid term "ovaritis." Chapters XXVI. and XXVII. treat of neoplasms, which are divided as follows: "1. Those that are most frequently seen in practice, and that are amenable to surgical treatment. 2. Those that are rarely (?) met with, and that resist all kinds of surgical treatment, and tend, by their very nature, to a fatal termination." Under the former are included benign, under the latter malignant, neoplasms; the latter being, for some reason, not considered at all—a serious omission considering their frequency. That this division is rather a forced one is shown by the fact that the author is obliged to include under the first class fibromata and cysto-fibromata, which he acknowledges are "quite rare." The latter, by the way, should have been included under the same heading with the former. It is highly important to emphasize the distinction between fibro-cysts and *fibrous* cysts. The pathology of ovarian cysts is touched upon rather lightly, the clinical side of the subject being the author's strong point.

The chapter on ovariotomy, though a little narrow in its scope, is instructive for the beginner; most operators may differ from the author in regard to certain technical details, notably the use of the clamp and cautery as a substitute for the ligature. The description of the operation is clear and systematic. Reference should have been made to the unquestionably good practice, now becoming quite general, of withholding morphine entirely after ovariotomy and moving the bowels on the third day.

"Tubo-ovariotomy," as the author terms removal of the tubes and ovaries, is an operation which certainly presents peculiar difficulties apart from those encountered in removing an ovarian cyst. We find on pages 472 and 509 the promise of a separate discussion of this procedure, but do not note any allusion to it in the pages which follow.

Chapter XXX., on diseases of the tubes, is too brief, considering the importance of the subject; the writer handles it as if it were the least familiar of all, and his statements in regard to both pathology and treatment exhibit a lack of positive opinion which is not observed elsewhere. This subject is evidently not a favorite one with him, and is dismissed in as few words as possible.

Dr. Skene comes out squarely in favor of the familiar distinction between pelvic cellulitis and peritonitis, a separate chapter being devoted to each. It would be unprofitable to renew the long discussion of the identity and relative frequency of the two forms of pelvic inflammation. It will cause specialists no little surprise to find in the latest authority on gynecology no trace of the influence of this discussion, or any reference to the array of anatomical evidence presented by such a careful observer as Dr. Polk in regard to the true nature of pelvic indurations. "I think," observes our author, "that the so-called chronic cellulitis, recognized and treated as such by some authorities, is nothing more than the products of the inflammation which remain after the inflammation itself has subsided."

The subject of extra-uterine pregnancy is carefully excluded from the chapter on hæmatocele, the wisdom of which is not apparent, since the diagnosis of the former condition and its relation to internal hemorrhage are topics with which the general practitioner cannot be too familiar.

Ectopic gestation certainly deserves a separate chapter in every modern treatise on gynecology—its true place, instead of in text-books on obstetrics.

The author's excellent work in connection with diseases of the urinary tract is so well known that it is enough to state that the three hundred pages devoted to this subject form a monograph of exceptional value. Space does not allow us to particularize, but we commend as especially worthy of study the three chapters on organic diseases of the urethra, and the concluding one on urinary fistulæ, with its beautiful illustrations. The average reader may question whether the urethral glands are sufficiently important to deserve a separate chapter on their inflammatory conditions (a longer one than is allotted to diseases of the Fallopian tubes), but enthusiasm is always allowable in a discoverer, and it is interesting to note how far Dr. Skene has pushed his investigations of the pathology of these little known structures since he first called attention to them.

The concluding chapter of the book deals with gynecology as related to insanity in women, and is a long and able essay, embodying the results of the writer's experience as gynecologist to the King's County Insane Asylum. The description of his method of examining and treating insane patients is especially interesting.

As we stated at the outset, this work is to be regarded as a clinical one. Viewed from this standpoint (as it is the wish of its author that it should be) it is admirable. Whatever fault we may occasionally find with the strictly pathological portions, the sections on symptomatology, diagnosis, and treatment are almost invulnerable. It is easy for a critic to pick flaws in a monograph, which must of necessity contain ideas differing from those which he has imbibed in his own school of gynecology, but no one can read Dr. Skene's treatise without arriving at the conclusion that it is an honest book, the fruit of earnest, original work. In many respects it is the clearest and most practical one that has yet appeared in our language, and we prophesy for it a career of usefulness which will extend through many editions, and will, if possible, increase the respect which the profession entertain for the acquirements of its honored author.

H. C. C.

A Manual of General Pathology, designed as an Introduction to the Practice of Medicine. By Joseph Frank Payne, M.D. Oxon., F.R.C.P., late Fellow of Magdalen College, Oxford; Physician and Joint-lecturer on Pathological Anatomy at St. Thomas's Hospital, etc. With one hundred and fifty illustrations. 8vo. pp. 528. Philadelphia: Lea Brothers & Co., 1888.

This well-timed publication is made up of an introductory chapter of six pages, and of two parts, of which the first contains twenty-seven pages devoted to Processes of Disease; the second, twenty chapters, on the Causes of Disease. In addition, there is a short appendix, giving the methods for examination and recognition of bacteria, and an excellent index.

In turning over the leaves of a book on general pathology, the student instinctively stops at the chapter on inflammation, and his opinion will be decided by the manner in which this important subject is treated. Applying this rule to the work before us, the verdict is decidedly favorable, for the chapters—there are two—on inflammation give a terse and epigrammatic summary of the existing knowledge of this subject. The author emphasizes the fact that inflammation is always due to injury either mechanical, chemical, physical, or "if the effect of living organisms, what we may call, for the want of a better term, *vital*." His definition of inflammation, however suggestive, is one that will not tax the memory of the student, for it is contained in the words "*inflammation is damage*." The important *rôle* of leucocytes in removing noxious substances, whether animate or inanimate, is dwelt upon and illustrated by numerous examples, of which the most interesting are drawn from the observations of Metschnikoff. The imperfect repair of injuries in cases of leukæmia is attributed to the fact, observed by Cavafy and Bastian, that the leucocytes in that disease have lost their amœboid properties; but surely a portion of this imperfection is due to the profound anæmia (oligocythæmia rubra) that is also invariably present.

The chapter on fever presents an excellent summary of our present knowledge of the physiological regulation of body heat and its pathological aberrations.

In the section on qualitative variations of the blood, it is stated that "we have no means of measuring the quantity of blood in the body, and all we can measure is the density, which indicates the proportion of water." The profession would be glad to know of any means, chemically applicable, by which the density of the blood can be ascertained. The want of such a test was expressed by the reviewer in an article published in Seguin's *Archives of Medicine* in 1882, in the following words: "A desideratum in the diagnosis of anæmia is an instrument that will determine the specific gravity of small quantities (a drop or two) of blood." Since that time he is not aware of any such instrument having been invented.

Exception may be taken to the statement on p. 271, that "in all chronic anæmias the average size of the corpuscles is diminished." The author refers to the giant-disks of pernicious anæmia, but considers their number too small to increase the average diameter of the disks. This is certainly an open question, and there can be no doubt that an increase in the average diameter of the disks is the most plausible explanation of the increased percentage of hæmoglobin in such cases. In the next edition of this work the statement, on p. 274, that "idiopathic (or pernicious) anæmia chiefly involves defective production of corpuscles," will probably be modified in accordance with the very recent researches of Hunter, who has determined that the essential pathological feature of this disease is an excessive destruction of blood.

The intricate subject of coagulation hardly receives the attention it deserves. There has always been a tendency to regard the question of coagulation as a physiological one, and it is always treated of in the text-books of that science. Such works have, in fact, very little to do with it, for the coagulation of albuminous fluids, whether it takes place within or without a cell-body, is invariably a form of necrosis.

The remarks upon the elimination of the poisons of specific diseases are very suggestive. The mode in which they make their exit from the

system, whether through the skin or intestinal canal, is sometimes regarded as a "providential arrangement intended to cure the disease; whereas, in reality, Providence would seem to be more concerned in perpetuating the specific virus." It certainly is an humbling fact to those who believe in the paramount importance of man and the providential care exercised in his behalf, that a much greater vitality seems to have been bestowed upon those organisms which are so often fatal to him.

In discussing immunity from disease, the author states that "innate or congenital immunity is shown in such facts as that the negro race never suffers from yellow fever." This affords an example of the repetition of statements of so-called authorities, and is completely disproved by the fact that, in the very recent epidemic of this disease in Florida, the negroes were attacked in large numbers.

The chapter on the specific morbid poisons will liberally repay careful perusal; in fact, it deserves repeated readings.

The chapter on ferments, while of great interest and well up to the times, is almost purely physiological.

The work, as a whole, has our heartiest commendation. Whether regarded as a text-book for the student, or as a work of reference for the scientific practitioner, it has no equal on the subject of which it treats in our language.

The beauty of the text, we regret to say, is marred by a number of typographical errors, although none of them, so far as we have observed, are perversive. F. P. H.

THE LIFE INSURANCE EXAMINER. A PRACTICAL TREATISE UPON MEDICAL EXAMINATIONS FOR LIFE INSURANCE. By CHARLES F. STILLMAN, M.S., M.D., Medical Examiner for the Mutual Life Insurance Company for the General Agency of the City of New York, etc. 8vo. pp. 187. The Spectator Company: New York and Chicago, 1888.

THE business of life insurance has become one of great importance, involving enormous liabilities, which are assumed only after careful medical scrutiny of the applicant. The duties of the medical examiner are, therefore, of the most responsible character, requiring professional experience and skill and special training.

Within recent years life insurance companies, for the most part, oblige the examiner to answer all the questions (except those of a subordinate character) contained in the application for insurance. To do justice to the company, to the applicant, and to himself, the examiner should be conversant with life insurance formalities, the method of examination of the proposer, and the diseases relating to life insurance. It is the object of this volume to furnish information upon these subjects.

A classified list of questions put to applicants for life insurance, which are based upon the forms used by six of the prominent companies, and a series of "instructions to medical examiners," founded upon the experience of several large companies, constitute part first of the treatise.

Part second relates to the various questions to be considered in making an examination of the applicant, and the methods of making such

examination. The main divisions of the chapter are: identification, environment, physique, temperament, examination of the lungs, heart, and pulse, examination of the abdomen, and examination of the urine.

Part third furnishes a synopsis of the diseases relating to life insurance. The influence of heredity in its bearing on the chances of longevity of individuals is fully described, and standard rules are furnished to guide the examiner in estimating the significance of certain factors in connection with the transmission of disease. A brief description is given of diseases solely with reference to the bearing which they have upon the rejection, postponement, or acceptance of the applicant for insurance. The rules furnished are not intended to be absolute, but simply to aid the examiner in arriving at a correct judgment. An appendix, containing information upon the legal questions affecting the office and evidence of the medical examiner, instruction to agents, and a table of life insurance statistics, complete the volume.

The treatise represents the results of many years of practical experience in the department of life insurance, and compares favorably with similar works by Sieveking, Allen, Levan, and Taylor. As a guide, it will be invaluable to the physician who is preparing himself for the duties of medical examiner, and for reference after he has entered upon the work. W. H. F.

DIE LUNGENSCHWINDSUCHT MIT BESONDERER RÜCKSICHT AUF DIE BEHANDLUNG DERSELBEN. Von DR. AUFRECHT, Oberarzt am Städtischen Krankenhause zu Magdeburg. 8vo. pp. 116. Magdeburg, 1887.

PULMONARY CONSUMPTION, WITH SPECIAL REFERENCE TO THE TREATMENT OF THE SAME. By DR. AUFRECHT, Chief Physician to the City Hospital at Magdeburg.

THE four discourses which comprise this volume were delivered by Dr. Aufrecht before the Medical Society of Magdeburg, in the spring of 1887. The general subject is treated under the following divisions: 1. The pathogenesis and etiology of pulmonary consumption; 2. The tubercle bacillus and miliary tuberculosis; 3. The symptomatology and prognosis of pulmonary consumption; and 4. The prophylaxis and therapeutics of pulmonary consumption.

For a number of years the tubercle bacillus has dominated the discussion of tuberculosis and overshadowed all the other important factors of this disease. The tendency has been to consider the medical treatment of this grave disorder as little better than fruitless until some certain specific is found against the parasite.

Dr. Aufrecht does not belong to the number of those who believe in the causal relation of the bacillus tuberculosis to phthisis. It is his purpose in these dissertations to show how the study of the prominent phenomena of this disease may be turned to useful account, and to prove by the results of a strict application of therapeutics to the characteristic stages of the disease—the early and subsequent stages—how unwarranted it is to rely solely upon general principles of treatment, or to remain inactive until some specific agent shall have been discovered to destroy the bacillus. In his opinion, under continued medical care,

supported by all the standard dietetic and therapeutic means at our disposal, especially if applied at a very early stage of the disease, pulmonary consumption, or, more precisely speaking, the lung-diseases leading thereto, affords a better prognosis than other chronic disorders.

It is not his intention to undervalue the meaning and importance of the discovery of the tubercle bacillus, but he avers that Koch has adduced conclusions, far-reaching in their influence upon society, which facts do not sufficiently warrant. If phthisis is engendered by the bacillus conveyed from person to person, then it follows that the strict isolation of the sick is an imperative necessity.

The curability of phthisis in general presents a strong criticism upon the correctness of the view of its infectious nature. If Koch's conclusions be adopted, all therapeutic measures are useless, and we must despair of curing the disease until a means shall have been discovered which shall destroy the parasite. The fact is, that the only possible therapeutics of phthisis must be based on clinical experience, and this the supporters of the parasitic origin of the disease are forced to employ until a specific has been found.

As an experimenter and able clinical teacher, Dr. Aufrecht brings to his task a ripe experience which enables him to unfold a difficult subject in a most instructive manner. His conservative views are based upon a careful study of Koch's investigations together with the results of an extended clinical experience, and are therefore entitled to more than ordinary consideration. W. H. F.

A Hand-book of Surface Anatomy and Landmarks. By Bertram C. A. Windle, M.A., M.D. (Dublin), Professor of Anatomy in the Queen's College, Birmingham. 12mo. pp. xi. 134. London: H. K. Lewis, 1888.

In view of the existence of Mr. Treves' *Surgical Applied Anatomy*, and of Mr. Holden's *Landmarks*, we cannot see any place for this book on *Surface Anatomy*. It is not so complete, either in the one direction or in the other, as either of the manuals we have mentioned. While it is good and true, it simply adds to the number of books in existence but adds nothing to our knowledge, and can hardly be said to add anything to the reputation of the author. Still, it is a healthy indication, in one respect, as it shows the increased attention which is paid to the anatomy of the exterior of the body, and, should it stimulate the author's students in Birmingham to careful study in this direction, it will be of value.

The author has given several pages to external anatomy in reference to the brain. We regret that he has chosen Reid's method in preference to any other, as it seems to be probably the least reliable, certainly for the fissure of Rolando, the most important of all the fissures of the brain at the present time. Moreover, in describing the fissure of Rolando, he does not give its angle (67°) with the middle line, one of the most important points about it. In fact his entire description of the fissures of Sylvius and of Rolando is vague and imperfect. He places the bregma on the biauricular line, which is too far back; and an error in

the reverse direction appears in the figure on the opposite page, where the bregma is placed too far in front of the biauricular line. In describing the lambda it is said, by a misprint which would puzzle a student very seriously, to be at the junction of the *coronal* and lambdoidal sutures, and in a similar manner that the falx "extends from the root of the nose along the frontal and *coronal* sutures to the external occipital protuberance." The use of the asterion and the pterion as measuring points is objectionable also, inasmuch as their positions are not readily ascertained on the exterior.

On the contrary, we note with pleasure his assertion that the apex of the lungs extends into the neck from one and a quarter to two inches, a fact very often forgotten in percussion of the apex; that the anterior border of the sterno-mastoid, which in a dissected subject seems to run in a straight course from the sternum to the mastoid, in a living subject curves anteriorly so far as completely to cover the carotid artery and its divisions. We notice, also, a few points of artistic anatomy which are introduced with advantage. But he should certainly have stated that the pointed process of the helix (to which Woolner and Darwin allude) is the result of development, and not at all of our evolution from ancestors with pointed ears. W. W. K.

EPITOME OF DISEASES AND INJURIES OF THE EAR, WITH A CHAPTER ON NASO-PHARYNGEAL DISEASES CAUSING DEAFNESS. By W. R. H. STEWART, F.R.C.S., L.R.C.P. Edin., etc., Aural Surgeon to the Great Northern Central Hospital, London, etc. Diamond edition. Pp. 126. London: H. K. Lewis, 1888.

THE author of this work desires to present a book of reference on ear diseases, small enough to carry in the pocket. Its condensed form will enable the student to use it both in ward work in the hospital and as a refresher of memory before examination, and the busy practitioner will find it a ready reference in his daily work. It has twelve chapters, and supplies, in fact, an excellent syllabus of the condensation of the large works on the ear. We believe the book will be very useful to anyone interested in diseases and injuries of the ear. It is especially wise to direct attention to naso-pharyngeal diseases as a source of aural disease and deafness. C. H. B.

PROGRESS

OF

MEDICAL SCIENCE.

THERAPEUTICS.

UNDER THE CHARGE OF

FRANCIS H. WILLIAMS, M.D.,

ASSISTANT PROFESSOR OF THERAPEUTICS IN HARVARD UNIVERSITY.

Creolin.

This germicide is obtained from dry distillation of the best English coal; it is a dark brown, oily liquid, of a tarry odor. It dissolves in alcohol, ether, and chloroform, and forms, when mixed with water, a uniform slightly alkaline emulsion. Bacteriological tests show it to be a stronger antiseptic than carbolic acid.

It was used in the lying-in hospital in Munich under Prof. Winkel, by Dr. Nimopoulos, in one hundred and forty cases, which were compared with an equal number treated by corrosive sublimate (1:2000). The cases treated by creolin were divided into three groups; one set was treated with ½ per cent. douches, one with 1 per cent., and one with 2 per cent. The creolin gave results fully as satisfactory as those from corrosive sublimate; it was found to be a better deodorizing agent than either carbolic acid or corrosive sublimate. —*Münchener medizinische Wochenschrift*, Nov. 6, 1888.

Neuendörfer, of Vienna, contributes a paper to the *Med. Chir. Centralblatt*, No. 28, 1888, on "Creolin." He says that the chemical composition of creolin is unknown, even to the manufacturers themselves. It is true that creolin does not contain carbolic acid, but it is not safe to conclude that it is not poisonous. From experiments on animals Neuendörfer finds that intravenous injection has a poisonous effect: a dose of about grs. iv per pound of body-weight causes death. The symptoms are violent, general spasms, restlessness and pain, and profuse salivation. After death the heart, liver, and kidneys were surcharged with blood, but the spleen was pale, thin, and bloodless.

The danger of poisoning should not prevent the use of the drug, which, as an antiseptic, is preferable to carbolic acid, salicylic acid, iodoform, or corrosive sublimate. It may be applied to a wound in solutions containing from 1 to 5 parts per 1000 without fear of poisoning. Purulence is dried up by its

touch and it leaves merely a yellowish-green serum on the bandage.—*London Medical Record*, Aug. 20, 1888.

The use of this new antiseptic and deodorizer in certain diseases of the throat and nose, especially those which are accompanied by profuse and offensive secretion, diminishes the amount of the discharge and improves its character.

Local applications should be made by means of a cotton tampon about the size of the little finger, moistened in a solution of creolin and pressed carefully by means of a sound into the depressions of the diseased surface. The tampons are allowed to remain twenty minutes, during which time the patient experiences a slight burning sensation which soon subsides after removal of the application.

In addition to this treatment a nasal douche of dilute, warm salt solution is to be used two or three times daily.—*Therap. Monatsh.*, Oct. 1888.

Probable Creolin Poisoning.

Since the introduction of this substitute for carbolic acid, its use has spread rapidly, not only for external use as a disinfectant, but also as a douche for various cavities and mucous membranes, and even internally in diphtheria, phthisis, and diseases of the alimentary canal. As a disinfectant its solutions have about the same power as corresponding solutions of carbolic acid. It is thought to have several advantages over carbolic acid. On account of its weak alkaline reaction it does not act upon the skin and tissues, either of the patient or of the operator, as much as carbolic acid. Its odor is less unpleasant and less persistent, and it is said to be wholly without toxic properties. To this last assumption the case about to be cited justifies exception.

After delivery, a uterine douche of about two quarts of two per cent. creolin solution was given to a healthy primipara of twenty-seven. On the following day a douche of a quart of one per cent. creolin solution was given, and on the next day a douche morning and evening, the last at half-past six. At nine o'clock she suddenly became pale, cold, and vomited; the vomiting did not cease; perspiration supervened, and the patient died at eleven o'clock, in collapse and unconscious with a temperature of 96.7° F. The vomitus had a strong odor of creolin, and also the urine found in the bladder after death. Five hours before her death the patient was well and strong.—*Therapeutische Monatshefte*, Oct. 1888.

Antipyrin in the Nasal Passages.

Dr. Hinkel has employed this drug in cases of acute coryza. He found that a solution of antipyrin possesses hæmostatic properties when sprayed into the nose, though inferior to cocaine. In about a four per cent. solution (grs. xvj to ℥j) it may be used upon the nasal mucous membrane with temporary relief to occlusion from engorgement of the turbinates, and with sedative effects upon irritable states, and is most effective where the element of irritation exceeds that of inflammation. It presents an advantage over cocaine in not producing local numbness and dryness, and, in the absence of the general stimulating properties of cocaine, causing sleeplessness, headache, etc. In cases, such as hay-fever, in which an agent for relief is used for

long periods, antipyrin as a nasal spray is less likely than cocaine to produce constitutional disturbance, or to lead to a "habit."

Antipyrin has the disadvantage of causing more or less severe smarting, and of being unequal to the relief of severe inflammation or extreme occlusion of the nares.

Its antiseptic and stimulating properties will probably make it serviceable as an application to fresh wounds and to granulations and ulcerations in the nasal chambers.

Combined with one-quarter to one-half per cent. of cocaine, it increases the local action of the latter, enabling it to be used in weaker solution.—*New York Medical Journal*, Oct. 20, 1888.

Incidental Effects of Antipyrin.

Few of the modern antipyretics have found such a wide application as antipyrin, and scarcely any has such unpleasant or deleterious accompaniments; moreover, the cases in which its use causes dangerous symptoms are increasing in number.

Dr. Drasche has reported the results of his own observations on more than three hundred cases, and has collected the reports of its incidental effects from the current literature. It has even been found to excite fever repeatedly in a case of rheumatism in a woman of fifty-two. Not infrequently the administration of antipyrin was followed by nausea and even vomiting, more often in women than in men; this action was not a local one, as it occurred in cases in which the drug was given by the rectum. In two children moderate doses were followed by hæmatemesis, convulsions, and death.

The eruption caused by antipyrin is of special interest; it occurs in about ten per cent. of the cases, chiefly in typhoid and phthisis, more often after continued use, though in some cases after a brief period and in minimum doses. It has, in exceptional cases, appeared after an interval of only five minutes or half an hour. As a rule, the exanthematous eruption remains from one to three days, but may be present for a week or more; it disappears when the drug is omitted and even when it is continued; and is quite independent of the amount given. The eruption is in the beginning chiefly local, but may spread over the whole body. It is most frequently erythematous in character, but may resemble measles, scarlet fever, and urticaria, and may occur even in different forms in the same individual at various times.

A rapid fall of temperature from antipyrin is not infrequently accompanied by profuse sweating which may continue for several hours; this, on readministration of the drug, may, or may not, return to a greater or less extent. In phthisis, after comparatively small doses, there may follow profuse and debilitating sweating.

In typhoid pneumonia there may also be a marked lowering of the blood pressure. The temperature may sink far below normal, and, on the other hand, may rise to even a higher point than before; there may be not only profuse perspiration but even rigors, and in some instances this may culminate in collapse and cyanosis. It may cause convulsions or narcotic symptoms, such as sleepiness, hebetude, and great depression. Severe coryza, with

abundant discharge of mucus, difficult breathing with frequent cough and expectoration, and profuse sweating may also be caused by it.

It is generally believed that antipyrin exerts no marked action on the kidneys, but slight degrees of retention, as well as incontinence, have been noticed, though quite rarely. The urine is somewhat diminished in quantity and its specific gravity is increased.

Antipyrin is certainly a drug which may excite disquieting and threatening symptoms as well as exert a toxic action, though their occurrence is exceptional. In general, it may be said that weak, debilitated subjects, those with a weak heart and children, are most apt to show susceptibility to the drug. In such patients small doses should be used at first, especially in typhoid and phthisis. The free use of this drug by the laity, without medical advice, should be discouraged.—*Wiener klinische Wochenschrift*, Oct. 11 and 18, 1888.

A marked case of increase of temperature following the use of antipyrin is reported by Dr. Hermann Müller in a patient ten years old, suffering from acute rheumatism. The rise caused by grs. x of antipyrin was from 103° to 105°, and at other times from 98.6° to 105° or more.

Several cases of a similar result from the use of salicylate of sodium are also reported.—*Schweizer Aerzte Correspondenz-Blatt*, Nov. 15, 1888.

Pyrodin, a New Antipyretic.

This new antipyretic has been extensively tried by Dr. Dreschfeld, of Manchester, on healthy persons and on patients suffering from various diseases, whilst Dr. Wild has investigated its physiological action in the laboratory of Owens' College. It has been found to be a remedial agent of greater power than antipyrin, antifebrin, phenacetine, or any other of those chemical bodies which have been so much recommended of late for the reduction of temperature in pyrexial cases. Pyrodin is one of the numerous derivatives of coal tar, and, as its active ingredient, contains acetyl-phenyl-hydrozin. It is a white, crystalline powder, very sparingly soluble in cold water, and almost tasteless. Doses of eight or twelve grains on consecutive days produced no ill effects on healthy persons. Similar doses of from eight to twelve grains markedly lowered the temperature, in from two to four hours, in cases of pneumonia, scarlet fever, typhus, and typhoid fever; but occasionally toxic effects are produced, and this seems to be more particularly the case in typhoid fever and in cases of rheumatism.

These toxic effects are those observed in cases of aniline poisoning, and depend on the action of the drug on the blood, producing a hæmoglobinæmia, or even a destruction of the blood-disk. The skin becomes jaundiced, and aniline can be detected in the urine. Pyrodin should never be given in larger doses than twelve grains, and only once in eighteen or twenty-four hours, and it is not safe to continue its use for more than a few days. If either of these precautions are neglected, serious or even fatal symptoms may be rapidly induced. As the use of antipyrin and other products for lowering temperature and relieving pain is becoming very extensive, we have thought it especially incumbent on us to warn the profession against the dangerous character of this latest addition to our therapeutic resources, and never to exhibit it except with the greatest caution.—*Lancet*, Dec. 8, 1888.

[In the next issue of the *Lancet* the editors publish a further caution against the use of this drug except under the exercise of the greatest care.—ED.]

CARBOLIC ACID AND ITS ALLIES.

PROFESSOR CASH, of Aberdeen, introduced the discussion of this subject at the Annual Meeting of the British Medical Association by beginning with an explanation of the chemical relations of carbolic acid, hydroquinone, and resorcin; other bodies of the aromatic series, antipyrin and antifebrin, were then discussed both chemically and physiologically. He detailed some experiments in which he had reduced the normal temperature of pigeons by carbolic acid. Comparatively large doses produced a rapid fall of several degrees, followed by an immediate gradual rise to the normal, so that there was practically no period at which the temperature remained uniformly low. With antipyrin, on the other hand, a comparatively small dose produced a sudden fall of temperature, which remained uniformly low for a long period of time before the temperature rose to the normal. These experiments demonstrate clearly what has been found clinically, that antipyrin is a better and surer antipyretic than carbolic acid. But they show more than this; other antipyretic drugs are constantly being added to the armamentarium of the physician; some are soon discarded as useless, others remain permanently in use.

Professor Cash's experiments seem to indicate a means of accurately determining the antipyretic value of a drug before it is utilized in therapeutics.

In the discussion several instances of the antipyretic power of carbolic acid were brought forward, and the local anæsthetic action of this group of drugs was commented upon.—*British Medical Journal*, Nov. 3, 1888.

CHINOTOXIN.

HOPPE-SEYLER recommends this substance as a substitute for curare for physiological experiments; the dose may be more accurately adjusted.—*Centralblatt für die medicinischen Wissenschaften*, Nov. 17, 1888.

HYOSCINE.

DR. DORNBLÜTH has used the drug with success in the asylum at Brieg. He does not find that a tolerance to the drug is established by its continued use, although it was given in some cases more than one hundred times consecutively.—*Berliner klinische Wochenschrift*, Dec. 3, 1888.

The results of the use of the hydrochlorate of hyoscine in Professor Jolly's wards for mental diseases, in Strasburg, during the past year are given by DR. EUGENE KUG.

The 23 cases were chiefly of mania, melancholia, and dementia. In 80 per cent. of them five to seven hours' sleep was obtained; in 14 per cent. three to four hours, and in 5.2 per cent. the result was negative. The doses were from $\frac{1}{200}$ to $\frac{1}{150}$ grain. In 17 there were no serious symptoms; among the 6 others, 2, after a hypodermatic injection of $\frac{1}{100}$ to $\frac{1}{120}$ grain, became pale, complained of dizziness, heaviness in the head and indisposition, and there

was no sleep. In a paralytic, $\frac{1}{100}$ grain brought on a delirium which continued several hours without sleep. In the 3 others the quieting effects were much less conspicuous than were staggering, weakness, stammering, and hallucinations.

When the drug was given by the mouth, which was done with 88 patients, in about 3000 administrations, sleep followed after one or two hours, and continued for eight to ten hours in 82 per cent.; in 4.9 per cent. there was no hypnotic action. In 13 per cent. the results obtained were between these extremes.

Better results followed the administration by the mouth than when given subcutaneously; the action comes on more slowly but continues longer and is less dangerous; the dose is about twice as much—$\frac{1}{60}$ to $\frac{1}{60}$ grain. By whatever channel the drug is absorbed the system is soon accustomed to it, and it becomes necessary to increase the dose, sometimes up to $\frac{1}{20}$ grain a day. It is then advisable to give up its use and choose some other hypnotic for a few days. It is an inexpensive drug and it diminishes excessive perspiration.

In insomnia of patients with active motor disturbance, hyoscine seems to be the best hypnotic; with quiet but sleepless patients, chloral, amylhydrate, sulfonal, and paraldehyd are better.

Hyoscine excites undesirable symptoms more readily in nervous diseases not accompanied by cerebral affection.—*Berliner klinische Wochenschrift*, Dec. 10, 1888.

Physiological and Therapeutic Action of Strophanthus.

Dr. Blumenau, of St. Petersburg, finds that the action of strophanthus in slowing the heart is brought about through the vagus, and that it does not act if the vagi are cut, and that the slowed beats become rapid if the vagi are cut after the administration of the strophanthin. Also strophanthin does not slow the heart if atropine has been previously given, the peripheral inhibitory apparatus being thus paralyzed.

The increase in blood-pressure he does not regard as brought about by an action through the vaso-motor centre, as the rise in pressure occurs after section of the spinal cord.

He found the tincture serviceable in certain forms of cardiac disease. In one-half the cases there was diuresis, not only the liquid, but also the solids of the urine were increased; the diuretic action came on promptly after the administration of the drug—without the delay which occurs with digitalis.

In two cases it caused nausea, vomiting, diarrhœa, and headache; in no instance, even after long-continued use, was there any cumulative action.—*Berliner klinische Wochenschrift*, November, 1888.

Professor Lee and M. Gley consider it probable that the action of strophanthus is to increase the activity of the heart's muscle, and that its action in constricting the bloodvessels is very great, probably through local action on the bloodvessels. They consider sparteine superior to strophanthus, and it has the advantage of being less toxic.

Dujardin-Beaumetz cautions the profession against the use of strophanthine, as there are several varieties; the preparations from the plant, rather than the active principles of both digitalis and strophanthus, should be chosen.—*L'Union Médicale*, November 15, 1888.

Cardiac Tonics.

Digitalis still holds its place as the most powerful heart-tonic which we as yet possess, and the most permanent in its effects. But there are good reasons for the zealous efforts made of late years to find some other means of strengthening the heart's action in cases of failure of compensation.

Strophanthus has been on trial for over two years, and it is difficult to decide in exactly what cases of cardiac disease it is preferable to digitalis. Nearly all observers confirm Fraser's original statements without adding any important new facts. However, Guttmann maintains that it cannot compare, either as a heart drug or as a diuretic, with digitalis. On the other hand, it was used in Bamberger's clinic with success.—*Dublin Journal of Medical Science*, December, 1888.

MEDICINE.

UNDER THE CHARGE OF

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Puerperal Anæmia and its Treatment with Arsenic.

Osler (*Boston Medical and Surgical Journal*, Nov. 8, 1888) says that of the twenty-one cases of pernicious anæmia of which he has notes, nine were in women, and in five of these the condition developed post partum. One of them he reports, by way of illustration. The patient began and continued to grow anæmic after confinement, could not sit up in bed without fainting, had constant vomiting and uncontrollable diarrhœa. Under the continued administration of Fowler's solution she steadily improved and became robust and of a good color, though iron had previously been given without any benefit whatever. The author then reviews the history of the employment of arsenic in pernicious anæmia, and calls attention to the fact that we do not fully understand the reason why the drug should be so useful in some cases and so useless in others. It certainly has often an effect in profound anæmia much resembling that of a specific; like that of quinine in ague, and iron in chlorosis. The initial dose should be five drops, increasing gradually to twenty or thirty drops three times a day. Puffiness of the eyelids, œdema above the eyebrows, vomiting or diarrhœa indicate that the drug should be suspended for a time. Sometimes arsenious acid is well borne, when Fowler's solution disagrees with the stomach. The point of greatest importance is that the medicine must be given for long periods and in increasing doses. In post-partum cases recovery is always slow, and it is well to intermit arsenic

for a few weeks; but it should be given at intervals for many months, even when the health is apparently reëstablished, as there is a well-recognized tendency to relapse in these cases.

Weil's Disease.

E. Lanphear (*Kansas City Medical Index*, November, 1888) describes a febrile disorder now prevailing at Kansas City, which he is inclined to believe may be identical with Weil's disease. He has seen seven cases of it, one of which ended fatally. The disease begins suddenly, usually with a severe chill; there is a sudden and alarming rise of temperature, persistent headache, moist and clean tongue, and a decided tendency to vomiting without much nausea. There are tenderness and some enlargement of the liver, and some jaundice is apt to be present. The urine is dark, strongly ammoniacal, and contains, in some cases, a slight amount of albumin. Herpes and purpuric spots occasionally appear. The characteristic feature of the disease is the severe and distressing pain which may develop in any of the muscles, but is most frequently confined to those of the back and calves. The fever is peculiar in that it begins with 104° to 106° F., and gradually diminishes in intensity without much remission; while the pulse keeps but 80 or 90, soft, and compressible, like the pulse of shock, and indicating a profound disturbance of the vasomotor centres.

The author considers the disease infectious. An autopsy on one of his cases revealed nothing characteristic. He discusses its diagnosis, showing that it has little in common with either typhoid or malarial fever, and is readily to be distinguished from cerebro-spinal meningitis. He obtained the best results therapeutically with aconite or gelsemium for the fever, or with salicylate of sodium, or with injections of sulphate of codeia into the body of the muscle to relieve the pain.

Treatment of Diphtheria by Antiseptic Cauterization.

Gaucher (*L'Union Méd.*, November 18, 1888, p. 728) has previously recommended the treatment of diphtheritic angina by the application of concentrated carbolic acid mixed with camphor. He now details the results of this method in the hands of Dr. Dubousquet, who has used it in 81 cases, 30 of these being infants, 31 children three to twelve years old, and 21 persons older than this. 77 recovered and 4 died; the cause of death being the invasion of the larynx by the disease. He, himself, has treated 99 patients in this way, and with only 4 deaths. The applications should be made three or four times a day, and with sufficient force to remove completely the false membranes. He considers the simple statement of the figures a sufficient proof of the efficacy of the treatment.

The Management of Progressing Cerebral Hemorrhage.

Andrew H. Smith (*New York Medical Record*, December 8, 1888, p. 666) says that when called to a case in which we have reason to believe hemorrhage is still going on within the cranium, but where symptoms of compression have not yet come on, the question arises whether there is no way in which the flow of blood can be arrested. Whatever is to be done must be

done at once. The provisions of nature which bring about an arrest of hemorrhage in other situations in the body are here inoperative, and the only limitation is when the brain has been compressed to such an extent that there is no more room into which blood can be poured. Ergot has been proposed as a means of checking the flow, since it constricts the arterioles. This very constriction, however, increases vascular pressure greatly, and may thus but increase the effusion of blood. It is, therefore, wholly contraindicated in cerebral hemorrhage. Purging, bleeding, and elevation of the head are designed to diminish the amount of blood within the cranium, but in proportion as they accomplish this they probably do more harm than good; for since we have finally to rely on pressure to stop the bleeding vessel, it is better to have this pressure exerted by blood within the vessels than by that extravasated into the brain substance. The more blood in the intra-cranial vessels, the less room for blood outside of them.

The author claims, therefore, that the correct treatment is to place the head lower than the body, and perhaps even to add to the congestion by the use of nitrite of amyl, which also lowers vascular tension and thus diminishes the *vis a tergo*. The symptoms of pressure would be brought on somewhat sooner by this method, but the effusion would be less, and in a half an hour a firm clot would have formed, allowing the head to be safely raised and the amyl nitrite withdrawn. Cold to the head is indicated, not to contract the intra-cranial vessels, but to favor the reduction of temperature, which hastens the formation of a firm clot.

Observations on Two Cases of Raynaud's Disease.

J. O. Affleck (*Brit. Med. Journ.*, Dec. 8, 1888, 1269) reports two cases of Raynaud's disease, both occurring in girls of sixteen years of age. In the first case the half of the left foot, and nearly all the toes of the right, were destroyed; the degree of destruction thus being much greater than is usually found in this disease. The second case was a much milder one; both hands being pale and painful, and portions of the fingers of the right hand finally sloughing. It is to be noted that there was an anomalous blood-supply in the right arm, there being no pulse to be found anywhere beyond the axilla. In discussing the pathology of the disease, the author calls attention to the deadly pallor, which is the first thing observed in typical cases. As it is, however, often absent even in genuine cases, and is a condition which may quickly pass off, it does not seem to offer a sufficient cause for the death of the part. Venous engorgement is a further stage of the disorder. The cause of this is not perfectly clear, but it is by no means probable that the stagnation is absolute, and that destruction of tissue would so quickly follow. We have not, therefore, a sufficient explanation for the development of gangrene, unless we assume the preëxistence of trophic defect or disturbance in the parts. The author believes that such a condition exists, and that the combination of this with the vascular changes is sufficient to produce the destruction of tissue. The severe neuralgias, which frequently show themselves before the symptoms of Raynaud's disease appear, support the supposition that trophic changes may exist, and this view was still further upheld in the first case reported by the discovery of extensive degenerative changes in the nerves of the foot which had been amputated.

Acetonic Asthma.

J. Pawinski (*Berlin. klin. Wochenschr.*, December 10, 1888, 1004) reports the case of a woman, who, on the day after a night spent in dancing, was attacked by dyspnœa, palpitation, headache, vomiting, and great dimness of vision. Examination disclosed some enlargement of the heart, numerous râles in the lower parts of both lungs, and numerous finely granular casts in the urine. During the first portion of her stay in the hospital there was continual shortness of breath, which, on one occasion, suddenly became so excessive that venesection was performed with great relief. The urine passed shortly before the venesection was found to contain large amounts of acetone. From this time on the condition improved, and acetone was almost or quite absent from the urine until the last day of observation. On this day large amounts were again found, and the patient again suffered from a severe asthmatic attack. During a second sojourn in the hospital there was some degree of dyspnœa, with occasional asthmatic attacks, but acetone could only be found in small amounts. There developed, also, dyschromatopsia and unilateral amblyopia. The author discusses the possible connection of the asthma with nephritis or hysteria, but concludes that it was in all probability due to an acetonæmia. We are, therefore, justified in speaking of an acetonic asthma, analogous to the acetonic epilepsy of von Jaksch. The case can, with still greater right, be considered an instance of auto-intoxication, since so large amounts of acetone (1.44 grammes in 1000 grammes of urine) were found, yet without the existence of any fever. As is well known, acetone is frequently present in febrile conditions, though in small quantities.

After some discussion of the matter the author concludes that the ocular symptoms by no means necessarily indicated the presence of hysteria, but, like the asthma, are probably to be referred to acetonæmia. The fact that the patient died in an asthmatic attack some time after returning home is an additional proof of the absence of any hysterical element in her case. The author reviews the possible sources of acetone in the system, and says that this is the first case on record in which such large amounts of acetone have occurred in nephritis. A certain relation was observed between the albumin and acetone, since the more there was of the one present in the urine the less there was of the other. He assumes, therefore, that in this case, at least, the acetone may have been formed out of the albumin. It is remarkable that a similar relation has been observed between sugar and diacetic acid in diabetes. The author finally discusses the qualitative and quantitative methods for recognizing acetone in the urine, and describes a modification of the quantitative method of von Jaksch.

The Contagion of Pneumonia.

At the close of a long discussion of the contagiousness of pneumonia, Netter draws the following conclusions (*Arch. Gén. de Méd.*, 1888, ii. 58): Acute pneumonia is a contagious transmissible affection. The contagion emanating from the sick persons owes its activity to specific pathogenic organisms, the pneumococci, which multiply in the pneumonic focus, and leave the body by different ways, but are especially abundant in the sputum. Contagion is possible long after the patient has recovered. One reason for this is

that the germ continues to live in the pneumonic patient for a long time after the disease has disappeared, and may be found in an active state in the mouth. Another reason is the resistance which the vitality of the germs offers to desiccation outside of the human body. This raises the question whether isolation of pneumonic patients should be practised. The author does not think this necessary, but would forbid the parents using linen that had been in use about the patient, staying continually in the room, or passing the night there. In hospital practice the pneumonic cases should be put in the smaller rooms, and not in the main ward. Especially should they be separated from cases of typhoid fever, measles, nephritis, diabetes, and acute affections of the respiratory tract. The sputum being the principal vehicle of contagion, should be disinfected. Linen and other articles should be disinfected in the same way as in the case of other contagious diseases. Disinfection of the oral cavity would certainly diminish very greatly the number of cases of pneumonia, by lessening the danger of relapse and the risk of infection to other individuals.

Contribution to the Study of the Influence of Alcoholism on the Development of Pulmonary Tuberculosis and of Atrophic Cirrhosis of the Liver.

Alison (*Arch. Gén. de Méd.*, September, 1888, 280), after a careful statistical study, finds that tuberculosis is frequent among habitual consumers of alcohol following laborious occupations in the country. Out of 58 patients with tuberculosis, living in various country places, there were 18 who had taken alcoholic beverages to excess. All of the 18 led active lives, favoring perspiration, sudden chilling, and the production of catarrhal affections of the respiratory passages. Nearly all worked in the open air, and the passing from the heated air of the tavern to the fresh country air was an additional predisposing cause for the development of tuberculosis. The beverages generally used were beer, wine, and brandy, these being taken in considerable quantities and at different times throughout the day. The author thinks that alcohol further predisposes to tuberculosis by its constant irritation of the bronchial mucous membrane while being exhaled, and by the impairment of nutrition throughout the body.

The second portion of the author's investigation shows that occupation exerts a decided influence on the development of interstitial hepatitis, independently of other well-established causes depending on the quantity, nature, and mode of ingestion of alcoholic liquors. Statistics show that this disease is very rare in those following laborious occupations in the country, whether they are temperate or not, and much more uncommon than in those having sedentary pursuits. The conclusion from a therapeutic point of view is, that to those predisposed to organic affections of the liver walking and the undergoing of physical labor should be recommended.

Heart Disease and Adonidine.

Thomas Oliver (*Lancet*, Nov. 24, 1888, 1012) says that a cardiac tonic must both improve the contractions of the heart-muscle, and must increase arterial tension if low, and thus promote the removal of water from the system

through the kidneys. Arterial tension may be increased in two ways: In the one, the drug increases the power of the heart, and more blood is sent into the vessels. In the other, it acts upon the vessels themselves, and contracts them.

The chief danger in heart disease is from reduced arterial tension, for the heart itself, as well as the systemic capillaries, suffers in consequence. The treatment of a case of heart disease depends not so much on the nature of the murmur, as on the condition of the left ventricle, the state of the arterial tension, and the existence of compensation. For all practical purposes digitalis answers very well, but it fails now and then. For some months the author has been trying adonidine in doses of one-sixth of a grain four times a day. He has used it principally in mitral and aortic regurgitation, in which it has given great relief. The drug is a cardiac tonic, with something of the sedative action on the heart which belladonna possesses. It gently raises arterial pressure, but has only slight diuretic action. The cases of aortic regurgitation in which it answers best, are those due to traumatic rupture of a valve, or to chronic aortitis, and where it has not arisen from rheumatic endocarditis.

Peru Balsam in Leucoplacia and other Epithelial Thickenings of the Oral Mucous Membranes.

After commenting on the various plans of treatment which have been recommended for *leucoplacia buccalis*, S. Rosenberg (*Therap. Monatsh.*, October, 1888, 449) advocates the employment of balsam of Peru for this affection, as well as for mucous patches and other epithelial thickenings in the mouth. The drug should be gently painted on, or vigorously rubbed in, according to the degree of tenderness, and should not be expectorated with the saliva, the secretion of which it stimulates. He reports thirteen cases treated in this way, most of whom were benefited by it. He concludes that Peru balsam is of service in relieving pain dependent on tissue-alteration of the oral mucous membrane, and that it hastens the healing of ulceration there, and causes epithelial clouding to disappear; though in old leucoplacias a prolonged period of treatment is required.

On the Absorption of Nourishment in Heart Disease.

Grassman (*Zeitschr. f. klin. Med.*, 1888, xviii. 183) has made a careful study of the condition of absorption of food in heart diseases; determining in several cases the chemical composition of the various substances ingested, and that of the urine and feces excreted. The results showed that in passive congestion of the circulation the absorption of the different articles of food was affected in very different degrees. It was found that that of the carbo-hydrates was very little or not at all disturbed. This result is striking, since von Mering has shown that the carbo-hydrates are chiefly if not exclusively taken up by the portal system, and this system must certainly suffer exceedingly in the congestion of heart disease. Müller has found, too, that even in the absence of bile or of the pancreatic secretion from the intestine, or in amyloid degeneration of it, the absorption of the carbo-hydrates is but little impaired.

It would appear, therefore, that whatever the nature of the digestive dis-

turbance, the assimilation of this sort of nourishment is least of all affected. The author further found that in heart disease the absorption of nitrogenous food was also little disturbed, even when ascites and œdema were rapidly increasing. It was, however, discovered that the power to take up fat was very greatly diminished, an average of eighteen per cent. of the fat eaten appearing again in the feces; or more than ten per cent. in excess of what should be evacuated by healthy individuals. The degree of congestion does not seem to have much influence on the lack of absorption, and it is not so much the congestion itself which is the cause of the trouble, as the chronic alteration of the intestinal mucous membrane which the heart affection has produced. As the fat in the feces was always properly reduced, at least two-thirds of it being in the form of fatty acids, it would seem that there was not so much an impaired digestion of fat as a want of its absorption.

The Treatment of Dilatation of the Stomach.

Ott (*Deutsch. med. Wochenschr.*, September 27, 1888, 807) says that the treatment of dilatation of the stomach must always depend on the cause of the affection, since there is no treatment applicable to all cases. The cause should be removed when possible, but when this is a stenosis, we can only treat the disturbed chemical processes of digestion, and in this way often cure the ectasia. The chief means to this end is the systematic lavage of the stomach. In carcinomatous ectasia this procedure is very useful, combined with the administration of peptone preparations. In dilatation from hyperectasia unlimited supplies of water cannot be allowed, and the intense thirst must be quenched by iced milk or pieces of ice. Massage, properly carried out, is a very useful measure. Electricity, as faradization, should also be employed, one pole over the left hypochondrium, and the other movable from the cardia to the pylorus. The current should be rather strong, and the *séance* last five minutes. The administration of Carlsbad water is also a very useful adjunct, since it diminishes the secretion of hydrochloric acid. Given in the morning, it can take the place of the lavage, which would otherwise be necessitated at this time, and this procedure may be reserved for evening, instead of being applied twice daily.

Acute Intestinal Occlusion.

Coppens (*Archiv. Gén. de Méd.*, October, 1888, 513) sums up his report of a case of intestinal occlusion with discussion of symptoms, as follows:

1. Of all the varieties of pseudo-occlusion, peritonitis from perforation is the only one which it is possible to confound with acute intestinal occlusion; an error which has been often committed.

2. The diagnosis between these two affections is of course necessary before treatment can be thought of.

3. This diagnosis is possible; the most important diagnostic signs being drawn from the examination of the temperature, and from the degree and method of onset of the meteorism.

4. Contrary to what has been hitherto maintained, it is in peritonitis, and not in occlusion, that the earliest and most extreme degree of distention of the abdomen is met with.

5. Though it is possible to distinguish intestinal occlusion from pseudo-occlusion, it is almost always impossible in the former to know with what variety we have to do. To determine this, however, is of almost no importance so far as treatment is concerned.

6. It is dangerous in intestinal occlusion to resort too long to palliative means. Surgical intervention should be made early, under the conditions which the author describes in the body of his paper.

7. The abdominal incision ought to be median, and sufficiently large to permit of rapidity and ease in exploration.

The Enlargement of the Liver in Rickets.

Hogben (*Birmingham Med. Rev.*, August, 1888) calls attention to the frequency of enlargement of the liver in rickets. A histological study of the liver of well-marked cases showed an increase of the connective tissue, sometimes combined with a fatty infiltration of the hepatic cells. In every case there was a remarkably definite though not excessive hyperplasia of the interlobular connective tissue. There was also a small-celled infiltration at the periphery of the lobules, and in some sections a thickening of the bile-ducts. The author thinks this a distinct form of cirrhosis in children, resembling hypertrophic cirrhosis. It differs from that of syphilis in the absence of intralobular growth, and from that of alcoholism in the greater coarseness of the process in the latter. Chronic gastro-intestinal catarrh (a constant early symptom of rickets), leading to involvement of the bile ducts and consequent chronic incomplete biliary obstruction, is possibly the cause of the interstitial hepatitis described.

Contribution to the Study of Spontaneous Rupture of the Spleen.

Barrallier (*Arch. Gén. de Méd.*, Sept. 1888, 299) reports two cases of rupture of the spleen; both of them confirmed by autopsy, and in both of which the enlargement was of malarial origin. After discussing at length the symptoms of this accident, and the way in which they are caused, he concludes that ruptures of the spleen may be produced in the first stages of malarial infection without exterior violence, and simply by a sudden and great hyperæmia of the organ. This hyperæmia, which exhibits no premonitory symptom, and occasions a rapidly fatal lesion, may be considered the expression of a special pernicious state, which may be called splenorrhagic pernicious fever.

Treatment of Ascites by Faradization of the Abdominal Walls.

M. Muret (*Rev. de Méd.*, Sept. 1888, 719) passes in review some of the cases already published, in which faradization was of benefit in ascites. Among the causes of the dropsy in these cases may be mentioned cancer of the liver, cirrhosis, cardiac affections, chronic peritonitis, malaria, etc.

He adds, then, two new cases to the list: The first of these was an instance of chronic peritonitis, probably tubercular. After treatment for seven months the patient left the hospital strong and well, without trace of abdominal effusion. The author believes that the disappearance of fluid is fairly to be attributed in large part to the use of faradization.

The second case was one of ascites from tumor of the spleen of unknown nature. After various diuretics had been employed without much success, excellent results were obtained by faradization of the abdominal walls, commenced after aspiration had been performed. Diuresis was increased to such an extent that a second aspiration was not needed for six weeks, instead of every five days as previously. Later, however, the fluid increased in quantity in spite of the use of electricity. The author discusses very fully the possible explanation of the cause of the absorption of fluid, and concludes that at present we cannot decide in what way the treatment acts.

Periodic Intermittent Albuminuria.

P. Merklen (*Arch. Gén. de Méd.*, August, 1888, 140) describes three cases in which albuminuria appeared only in the daytime, and was entirely absent while the patients were kept at rest in bed; while food, nervous excitement, and exposure to cold were without influence. He concludes that the regular intermittence of albuminuria, the integrity of the general health, and the usually complete recovery are in favor of the view that this singular affection is simply functional; a sort of repeated renal congestion. This would be always induced by the erect station, or by muscular exercise, owing to an habitually atonic state of the circulatory system. In regard to the exact mechanism of albuminuria, it is supposable that the disturbed renal circulation modifies the glomerular epithelium in such a manner that temporary transudation of albumin is permitted. As soon as the renal circulation assumes its normal condition the vitality and impermeability of the epithelium are restored. Why the albuminuria should cease at about 6 P. M., before the hour of retiring, is by no means clear. The prognosis is good, except that repeated functional disorder may pave the way for some organic kidney affection. This has, however, but rarely occurred. It is well to bear in mind that this intermittent albuminuria is carefully to be distinguished from that of the early stages of interstitial nephritis. The latter should be easily distinguished by the concomitant symptoms, though they have been frequently confounded.

SURGERY.

UNDER THE CHARGE OF

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Surgery of the Lung and Thorax.

Within the last few months a number of important papers upon pulmonary surgery have appeared, showing an increasing tendency to apply modern surgical methods to the thoracic viscera.

Pulmonary abscesses are rare sequelæ to acute pneumonia, but occasionally after recovery from an advanced stage of the acute disease the clinical signs of such abscesses may be found. They are of grave significance, for all their ways of healing, whether by absorption, as by breaking into a bronchus, or into the pleura, the pericardium, or the liver, or externally, are dangerous. This has led surgeons to attempt to evacuate them by thoracentesis, which is easier than in the case of tuberculous vomicæ, for they are generally surrounded by healthy tissue, nearer the base of the lung and more within reach, and probably, also, the patient is in a better state to stand operation. Out of ten cases cited between 1880 and 1888 (*Rev. de Méd.*, Aug. 1888) there was complete cure in four (under Rüneberg, Queifs, Rohden, and Quincke); cure with a small fistula in three (under Finne, Bacchini, and Fenger); and death in three in whom there was a gangrenous cavity occupying nearly the whole of the lower lobe of the lung (under Sutton, Smith, and Spillman), and who were profited temporarily by the operation, but died of gradual exhaustion after it. These were all cases of abscess following acute pneumonia. The diagnosis of the exact position is often difficult, and an exploratory puncture is of value. Adherence of the two layers of the pleura before opening the abscess is also of value. RÜNEBERG (*Deutsch Arch. für klin. Med.*, p. 93) advises the actual cautery or stitches to aid in producing adhesion.

Spillman and Haushalter operated on the fifteenth day of an acute pneumonia, and withdrew a little fetid pus, and injected iodoform and glycerine. The patient died, and at the autopsy a small abscess was found which had not been hit by the needle. In England the more common method is to open the abscess freely and wash out with an antiseptic. When proper, a slow entry into the lung by thermo-cautery, and the subsequent insufflation of antiseptic powders. (*The Practitioner*, Dec. 1888.)

QUINCKE (*Berlin. klin. Wochenschrift*) reports two cases of pneumonotomy. In both access was gained to the lung tissue by the gradual destruction of the overlying tissues by chloride of zinc paste. In one an abscess cavity was reached in this way; in the other no pus was found. Both recovered. A case recently occurred in New York which showed the difficulty of reaching pus in certain conditions even when its presence has been ascertained by the needle. On the resection of a rib at the point where a puncture had shown pus, the pleura was opened, but nothing but blood was obtained; a second rib was resected with the same result; and it was only after resection of a third rib that the abscess cavity was opened and drained. (*New York Med. Journ.*, Dec. 8, 1888.)

MR. HOWARD MARSH (*The British Medical Journal*, Oct. 13, 1888) concludes that while in recent cases the aspirator *may* be useful, yet that generally it is better to make an incision and establish free drainage. He agrees with Mr. Godlee, that an opening at the lowest part of the chest, where the cavity is soonest obliterated, is less efficient for drainage than one placed higher, opposite the part of the empyema, which is the last to close. In cases in which the empyema is chronic, and in which suppuration continues after a free opening has been made, Estlander's operation, consisting of a removal of a portion of two or more of the ribs, should be performed. It is valuable, first, by permitting the insertion of the finger to break down adhesions and evacuate secondary collections of pus; next, by aiding in the approximation

of the thoracic walls in those cases in which, the lungs being bound down, the cavity cannot close on account of the rigidity of the parietes.

MR. PRIDGIN TEALE (*Ibid.*) formulates the following views relative to the surgery of the chest: The inrush of air at the time of operation is harmful because it reduces the power of the thoracic wall and inspiration; when life is thus threatened the problem will be to provide adequate drainage and at the same time prevent the inrush of air; the region of the diaphragm is that where abscesses amenable to surgical treatment most frequently occur; they can be more safely opened through the lower angle of the thorax, if there is dulness there, than through the abdomen; antiseptic washing is of value during the early period but unnecessary later; the excision of ribs is reserved for special cases.

SIR SPENCER WELLS reported (*Ibid.*) a case of abscess of the lung operated on forty years ago, the patient being still alive and well. In this case the abscess and resulting fistula were in the right axilla.

In a very elaborate paper in the *Edinburgh Medical Journal* for Dec. 1888, DR. J. W. B. HODSDON inquires into the mechanism of the cure of empyema, and the causes which produce failure to cure. In favorable cases the cavity is closed in the following manner:

The lung is expanded intermittingly to a slight extent during normal breathing, markedly so by forced expiration and coughing, and these forces are aided by blood-pressure, which is an important factor; air is forced out at the opening during expiration, and is to some extent prevented entering by the falling together of the edges of the wound, or by the valvular action of the dressings, in consequence of which, and also of the possible absorption of a small quantity of air between the times of dressing, if it be not necessary to do so frequently, a degree of negative pressure is produced in the cavity, which is, of course, also favorable to expansion. As the lung is being expanded by these means, the formation of adhesions between the two pleural surfaces serves to maintain it in contact with the chest-wall, which has, in proportion to its elasticity, been falling in to meet the lung, while the diaphragm, by rising up and becoming adherent, and the mediastinum, by returning to its normal position as expansion progresses, also assist in the closure of the cavity. Failure on the part of the walls of the empyema to come together generally occurs in adults. The circumstances which give rise to it are related to the lung and to the chest-wall.

1. *As to the lung.* It may have lost its elasticity in consequence of inflammatory changes in its structure, producing fibroid induration and other conditions which render it wholly or partially incapable of expansion. By far the most common cause, however, although the two may be combined, is the fixing of the lung by dense adhesions and the coating of its surface with a thick layer of lymphoid material. If we examine the thorax in such a case, we find the pleura enormously thickened, the lung adherent, and partially or totally incapable of expansion, lying posteriorly in the hollow formed by the angles of the ribs, and constituting part of the wall of an abscess cavity lined with granulations. This state of matters usually arises from delay in opening, but in patients the subject of tubercle, or who have a tubercular tendency, it may occur at a comparatively early period, and is a strong argument in favor of early opening in such individuals. Then, again, septicity and tension in

consequence of bad drainage, favor a continuance of suppuration, which, in its turn, conduces to thickening of the pleuræ and hindrance to expansion.

2. *With regard to the chest-wall* one need only remark that the cause of failure on its part is rigidity, which is, of course, marked in proportion to the age of the patient; and that while the ribs do fall in to a certain extent in all cases, this occurs only to a satisfactory extent in young persons. The diaphragm and mediastinum fail to do good, in consequence of want of expansion of the lung producing a sufficient degree of negative pressure in the pleural cavity to enable the former to rise up or the latter to return to its normal position.

There is a class of cases between these two which we very frequently meet, and which, perhaps, most commonly come under the care of the surgeon. They are the cases in which expansion of the lung, falling in of the chest-wall, and rising up of the diaphragm take place to a certain extent; but an obstinate fistulous opening remains, and the patient is exposed to all the risks of prolonged suppuration. This condition is most prone to occur where opening has been delayed, septicity is present, and drainage has been imperfect. We find in such cases the lung unequally expanded throughout, adherent to the chest-wall where expansion has taken place; and where this has failed an abscess cavity exists, or there may be several such abscesses communicating with one another, or with the external wound by narrow orifices. This state of matters is due to portions of the lung being incapable of expansion from changes in its structure, and to thickening of the pleura over it, or to both of these conditions.

The Radical Cure of Femoral Hernia.

The literature of the radical cure of hernia, while becoming most extensive, is markedly deficient as regards operative details applicable to the femoral variety. Macewen, Barker and others dismiss the subject in a few words. Dr. H. W. Cushing describes (*The Boston Med. and Surg. Journal*, December 6, 1888) the method he employed in the case of a boy, aged twelve years, with an irreducible femoral hernia of four years standing. The sac was lightly adherent to the edge of the saphenous opening. By dissecting through the subjacent tissues between the spermatic cord and the outer pillar of the external abdominal ring, the sac was exposed as it entered the crural ring. It could then be freed from within outward, by general traction, manipulation, and dissection; and after division of the adhesions to the saphenous opening became perfectly reducible, leaving the femoral vein exposed throughout this entire distance. The sac was now opened, and with scissors and scalpel the omental adhesions to its inner surface were, with considerable difficulty, divided. The omental mass, measuring two inches by one and one-half by one and one-half, was then ligated, cut away, and its stump pushed back into the peritoneal cavity, leaving the sac resting free and empty in the crural ring. A continuous suture closed the sac, which was then folded on itself and fixed within the abdomen, *à la* Macewen. The suture effecting this reduction passed through the crural canal and upward to the surface through the transversalis fascia, conjoined tendon, and aponeurosis of the external oblique. The crural ring was next closed by suturing Poupart's ligament with a "quilted suture"

to the pubic portion of the fascia lata and the fascia covering the pectineus muscle, the femoral vein being protected with a retractor. When secured the opening apparently became impervious, the folded sac forming a pad, which was firmly fixed against the internal opening of the crural canal, while the suture tightly closed the external aperture. The pubic and iliac portions of the fascia lata forming the margins of the saphenous opening were next sutured in a manner similar to that by which Macewen causes the external pillar to overlap the conjoined tendon in the inguinal operation. The result was apparent cure.

Encysted Vesical Calculi.

M. Berger (*Revue de Chirurgie*, November 10, 1888), at a recent meeting of the Société de Chirurgie, presented ten calculi, each of which had been imbedded in a vesical pouch, rendering operation very difficult. The rectal colpeurynter of Petersen had in this case greatly facilitated their extraction, which was effected by the supra-pubic method. Two days later the patient died of interstitial nephritis, and numerous other calculi were found which had escaped observation.

At the same meeting MM. Nicaise and Poutier reported deaths from rupture of the rectum during the use of Petersen's dilator, and M. Despres stated that five deaths from this cause had already been reported to the Society. The quantity of liquid injected in M. Nicaise's case was about ten ounces.

Mr. Fenwick reported (*British Med. Journ.*, Nov. 17, 1888) an interesting case of encysted calculus in which the symptoms had lasted eight years. The calculus could be felt bimanually, and was subsequently discovered to be hour-glass in shape. The smaller piece (one ounce and a half) was found projecting into the bladder at the level of the left ureteral orifice, and the larger portion (four ounces and a half, the size and shape of a large hen's egg) lying in a diverticulum outside the back and base of the bladder. These two portions were connected by a very slender neck. The vesical piece was easily snapped off, leaving the neck protruding from the three-penny-piece-sized orifice of the diverticulum. The position of the opening rendered much dilatation of it dangerous.

It was impossible, therefore, to extract the encysted portion entire. Attempts to crush it, by means of lithotrite or forceps, failed. A chisel was guided through the orifice of the diverticulum and laid upon the stone; elastic counter-pressure was afforded by Petersen's rectal balloon. The calculus was then cut through by repeated blows with a mallet. After many shiftings of the pieces and sections in every direction, the stone was chiselled into sufficiently small fragments to allow of their being extracted through the orifice.

The wound rapidly healed, and the patient left for the country in six weeks without an untoward symptom.

The Artificial Augmentation of the Growth of Human Bone.

Max Schüller (*Deutsche med. Zeit.*, 1888, No. 99), in a communication to the Medical Society of Berlin, November 28, 1888, considers at some length the question of the artificial encouragement of bone-growth. The idea of the artificial increase of bone-growth is based obviously upon the general laws of

normal growth, but rests also upon a series of pathological observations and upon numerous experimental researches into the conditions under which the increase or decrease of bone-formation occurred.

Langenbeck, Bergmann, Dittel, Tillmans, Ollier, and others, have recorded the results of their observations upon the regeneration of bones, and Helferich, Haab, and von Bidder have confirmed them experimentally. In young persons, still in the period of growth, it was especially noticed that after necrosis and chronic inflammatory processes, an hypertrophy of the bones occurred, especially when these processes affected the diaphysis. In the neighborhood of the epiphysis and of the inter-articular cartilage, the results are different. If the latter is destroyed, a decrease in bone-formation follows. It has been accepted as true that an irritation is transmitted from the inflamed bone to the epiphysis, and this gives rise to more active bone-production. Schüller, however, believes that the greater vascularity of the surrounding parts finds expression, through the articular cartilage, in the production of bone.

The pathological increase in bone-growth has more rarely been observed in fractures, in inflammation of joints, etc., but likewise only in children. Experiments show that after irritation of bone in young animals, either directly through the scratching of the periosteum, or by the introduction of pegs in the middle of the diaphysis, an elongation of the bone almost constantly followed, while destruction of the inter-articular cartilage was almost as constantly followed by atrophy. Ollier has applied these observations practically in a case of atrophy of the radius following ostitis, in which there were increased growth of the ulna and deviation of the hand to the radial side. By destruction of the lower cartilage of the ulna he was able by reason of the altered growth conditions to bring the hand back into its normal position.

Von Langenbeck recommended after resection of the knee-joint the introduction of an ivory peg, in order to avert consecutive shortening. He made the same proposal for cases of imperfect development in infantile paralysis, but never practically applied it. In 1887 von Helferich recommended the establishment of an artificial congestion in the affected limb by means of an elastic bandage, giving rise to increased activity of nutrition of the bones and of the whole limb. He has especially employed this in cases of delayed union after fracture, in the hastening of the separation of the sequestrum in necrosis, and even in sound individuals with extremities of unequal length, and in all of these cases with favorable results. In cases of infantile paralysis, however, no good effects were obtained.

Schüller, in these latter cases, adopted and tried the elastic bandage, combining with it other processes of local treatment, certain dietetic regulations, and, in some cases, different operative procedures. He applied an Esmarch tube in such a manner that it compressed the veins, but left the arterial supply free. At first it was removed in a few bones; afterward he left it in place day and night, having careful watch kept as to the effect. In addition, he used massage, bathing, diet favoring the assimilation of lime salts, regular exercise, etc. All the children thus treated grew stronger and better. In one case, a four year old child, with paralysis of the right leg and shortening of the femur of more than one centimetre, was treated for three months, the

extremities then having become equal in length. In another, an otherwise healthy boy of nine years had crossed paresis and atrophy following infantile paralysis. The right arm and hand and the left leg were withered. Four months' treatment resulted in great improvement.

In another series of cases, in addition to the above-mentioned treatment, Schüller employed steel pins of different lengths inserted into the affected bones, with all antiseptic precautions, left for from five to nine days and then withdrawn.

He details three striking cases: one of infantile paralysis, with resulting paresis of both lower extremities, a paralytic pes calcaneus, and shortening of the tibia. One steel pin was inserted in the lower part of the tibia, and left for eight days. When the other treatment was begun, at the end of two months, the foot had gained four cm. in length and two cm. in breadth; the shortening of the extremity had disappeared; the ankle-joint, formerly flail-like, had recovered its strength; movement had returned to the toes; and the general cutaneous surface, formerly blue and cold, had regained its natural color and warmth. The second case was that of a patient fourteen years of age, who, when three years old, had undergone a resection of the ankle-joint leaving it loose and useless. Great improvement resulted. The third case proved that in a patient with genu-valgum it was possible so to localize the increased bone-growth as to correct the inequality in the lower end of the diaphysis which gives rise to the deformity. A steel pin was inserted two finger's-breadth above the knee-joint on the outer side. It was removed in five days. Two weeks later the other treatment was begun. In three months there was great improvement; in four and a half months the genu-valgum had disappeared; the femora had grown three cm. on the outer side, the form and line of the knee-joint had become normal.

In the discussion upon this paper, which occurred December 5, 1888, Herr Schüller emphasized the essential points of his treatment and his claims to originality, and has repeated them as follows in a letter to the Editor of THE AMERICAN JOURNAL OF THE MEDICAL SCIENCES:

While much has been written upon the subject by the above-mentioned authors, none of them, not even von Langenbeck, employed in the human subject the method suggested. Ollier has only recorded two cases treated by scraping the periosteum, perforating the bones, etc. Helferich obtained some good results with a modification of the method of elastic compression suggested long before by other surgeons. Schüller, however, asserts that he was the first to aim at increasing bone-growth, not only by making the bone hyperæmic, but also by giving the shortened or withered limb a greater mass of blood, a more active circulation, and a larger support of nourishment having the quality of favoring bone-formation. By examination of the urine he has discovered what form of food, and which of the lime salts are best fitted to this end, having carefully estimated the quantities excreted and retained. The steel pegs need only be left for a short time, and may set up best a trifling degree of hyperæmia, but if this is followed by his combined treatment a continuous production of bone is almost sure to occur.

Arthrectomy; Erasion of Joints.

Mr. Edmund Owen, in the course of a paper on this subject (*The British Medical Journal*, November 17, 1888), expressed the following views as to this operation, which is rapidly advancing in favor:

The construction of the hip-joint renders it unsuited for treatment by arthrectomy in chronic disease, but as a supplementary measure to resection of the head of the femur it is likely to prove of great value. The epiphyses may often escape mutilation, whilst the whole of the pulpy synovial membrane and all other diseased tissue are cleared out of the articulation. The cartilages joining the epiphysis with the shaft are neither disturbed nor trenched upon, and thus the risk of the patient's recovering with a greatly shortened limb is obviated. Indeed, it is even possible that the patient might recover, not only with a limb of normal length, but with a joint in which the movements are but little, if at all, interfered with. Such a result, however, is neither to be expected or aimed at.

After the operation, the limb is to be kept absolutely stiff, and fixed in splints for many months, and if, at the end of that time, a certain range of movement is discovered, the joint might be left to shake itself free, no manipulations being resorted to. In all probability, the knee will be synostosed and straight.

To cases of pulpy or chronic suppurative disease of the knee-joint the operation is admirably adapted, provided that the disease is not too far advanced, so that the bones are extensively implicated, and that the patient is the subject neither of general tuberculosis nor of albuminoid degeneration. In short, arthrectomy is the proper operation in most of those cases in which resection has hitherto been performed. Over resection it holds this great advantage, that it takes away from the articular surfaces only such tissues as are actually diseased.

On several occasions it has been noticed that after the joint had been thus thoroughly cleared of elements which were of a diseased or suspicious nature, the health of the patient had shown an immediate and marked improvement, appetite and general health altering for the better, and permanent convalescence being at once established.

Speculations were made upon the possible influence of the bacilli tuberculosis. The improvement which followed upon the clearing out of all the diseased tissues was as notable as that which often follows the amputation of a sarcomatous limb or a scirrhous mamma.

Mr. G. B. Wright (*The Lancet*, December 1, 1888) describes the operation and considers the most noticeable points to be: 1. Full exposure of every cranny in the joint. 2. Absolutely complete removal of all disease, scraping at any doubtful bony spots. Well-localized foci of disease in bone, if of limited extent, are no bar to success. The use of the cautery afterward is often good. 3. The crucial ligaments should be preserved, if possible, as they tend to steady the joint afterward. 4. The limb should be well fixed until healing is complete; then the patient may get about with crutches and a patten in a Thomas's knee-splint, or with the limb fixed in plaster of Paris. 5. As in excision, flexion will occur unless the limb is kept fixed for from two to three years at least. 6. In some cases actual lengthening of the limb occurs after

the operation, just as overgrowth not uncommonly follows necrosis from acute periostitis.

The Limitation of Flexion in Posterior Luxations of the Elbow.

Dr. E. Zuckerkandl (*Deutsche Zeitschrift für Chirurgie*, Band xxviii., 1888) has made a series of experiments to determine the causes of the limitation of movements of flexion in cases of dislocation of both bones of the forearm backward. He finds that it is not due to the displacements of the bones, or to their directly impinging one upon the other, nor does it depend to any great extent upon the stretching of the muscles, but chiefly upon the ligaments, especially the internal and external lateral ligaments. His observations led him to believe that the most posterior fibres of the external lateral ligament are the strongest portions of the capsule of the joint, and exercise the greatest influence in limiting flexion. The smaller the portions of the ligament left untorn at the time of the accident, the greater the possibility of movement in the direction of flexion. If the lateral ligaments are entirely torn through, the movements of the luxated elbow-joint are free.

The most rational method of reduction in such cases seems to be by means of hyper-extension, lessening the effect of the lateral ligaments, and in some instances entirely eliminating it. By overstretching the joint the fibres of these ligaments are torn successively from before backward until finally only the thin posterior border of the capsule remains. Reposition by flexion or traction of the forearm can then easily be accomplished.

In the commonly employed method in which extension in the axis of the upper arm is made upon the forearm while it is flexed at a right angle, the resistance of the ligament is overcome by direct traction. This method would also become more easily effectual if, as a preliminary procedure, the ligamentous fibres at fault were first fully destroyed by a vigorous overstretching.

The Distribution of Paralysis and Anæsthesia in Injuries of the Cervical Spine.

Mr. William Thorburn (*British Medical Journal*, December 22, 1888), who has had exceptional experience in observing the results of injuries of the spine, records his observations upon the distribution of paralysis and anæsthesia in nineteen cases of traumatism of the cord between the fourth cervical and first dorsal vertebræ. He traces the exact extent of the paralysis in crushes and also of the consecutive ascending myelitis by observing the way in which the muscles of the upper limb subsequently become paralyzed. He gives a table of the muscular nuclei of the brachial enlargement, extending from the supra-spinatus to the interossei—*i. e.*, from the fourth cervical to the first dorsal nerve. In some of his cases the positions of the affected limbs were made so characteristic by the partial paralysis with which they were affected, that the diagnosis of the exact seat of the spinal lesion was made at a glance. As to anæsthesia, his cases bear out the conclusions arrived at recently by Dr. Ross (*Brain*, January, 1888)—*i. e.*, that the outer parts of the limb are supplied by the higher roots, the inner by the lower in continuous order.

From observation of a large number of cases of injury in the region of the brachial enlargement of the cord, he concludes that in all cases, however complex the symptoms may appear, we are able, by means of a careful consideration of the distribution of the paralysis and anæsthesia, to obtain a definite diagnosis. In this way many of the cases usually described as "concussion" of the cord may be much more accurately diagnosed. Of a total of about 350 railway accidents of all kinds, and 50 spinal injuries due to various causes, which have come under his observation, he has never yet seen an instance in which *spinal* symptoms were present where he could not definitely postulate some gross injury—fracture, hæmatomyelia, meningeal hemorrhage, myelitis, meningitis, or sprain, with pressure upon certain nerve roots, without requiring to fall back upon the unknown "molecular" changes supposed to constitute concussion; and, hence, he is strongly led to believe that such observation will enable us to detect many cases of imposture, in which symptoms are irreconcilable with any definitely localizable lesion.

OPHTHALMOLOGY.

UNDER THE CHARGE OF

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ON THE INJURIES TO THE EYES WHICH OCCURRED TO THE GERMAN ARMY IN THE WAR AGAINST FRANCE IN 1870–71.

A report, edited by the Medical Department of the Prussian War Office, with the assistance of the Medical Departments of the Bavarian, Saxon, and Wurtemburg Ministries, has just been issued. It is very complete and carefully compiled and deserves to occupy a place in the library of every ophthalmic student. In most respects it is a great improvement on similar reports in connection with other wars, and this greatly because of the more advanced state of ophthalmology at this time, and since the time of the Franco-German War.

Some points in the general statistics, which constitute the first section of the report, deserve attention. In all, 860 cases of injury to the eyes or to vision were recorded, a percentage of 0.86 of the whole number of wounded, and of 8.5 of the wounds of the head. Of these 860, 786 were cases of wounds of the eyes, and 64 such in which vision was in some way injured, or altogether destroyed, as the result of wounds to the brain and skull. This frequency of wounds to the eye is compared with that given in the statistics of other campaigns: thus in the French army, during the same war, the percentage was 0.81, and in the American war 1190 cases, or 0.5 of all the wounded, occurred. The left eye was more frequently wounded than the right in the proportion of 374 to 317, partly, it is supposed, owing to the position taken up by the infantry whilst firing, and partly to the protection which the gun affords to the right eye from individual bullet wounds. After de-

ducting the cases of indirect injury, it was found that 96.2 per cent. of the wounds were caused by projectiles, and only 3.8 per cent. by bayonet or sword thrusts. Of the wounds from projectiles, again, 61.4 per cent. were bullet wounds, 38.6 per cent. wounds from portions of shells, etc. The percentage of the direct wounds—that is, such as were caused by projectiles striking the eye from the front, was found to be 0.28. Taking a radius of 12 mm. for each eye, we get a surface of 1808 sq. mm. for the extent over which direct wounds of either eye can take place; and taking the average surface of the whole body as equal to 1,185,000 sq. mm. the surface relation of the eyes to the whole body is as 0.15 : 100. But the eyes participate in the liability to injury of the whole head, which is twice as great as that of other parts of the body, so that the direct injuries were found to correspond closely in number to the calculated chances of injury. They formed also 2.6 per cent. of all the injuries of the head, a proportion which is the same as that of the exposed surface of the eyes to that of the head. The total number of cases of injury to the eyes was, however, so much greater that the compilers of the report have been led to assume that there must be a specific tendency to such wounds. This is explained partly on account of the small relative power of resistance possessed by the tissues of the eye, so that the blows, which in other parts of the body would do no particular harm, may produce serious damage to the eyes, partly on account of the great extent of the nervous connections of the eyes.

The second section of the report treats of the character of the wounds according to their cause. The different causes were: wounds with powder and from atmospheric compression, direct bullet and shell wounds, wounds produced indirectly by projectiles, bayonet and sword wounds, blows and other accidents.

Wounds from powder were mainly burns when the accident occurred, owing to an explosion near at hand, but there were also cases met with in which grains of coarse powder were found to have penetrated the eye. Injuries directly ascribable to mere atmospheric compression were very rare; one case is recorded in which, without any external wound, hemorrhage into the vitreous followed by detachment of the retina, resulted from the discharge of a musket close to the patient's temples by a man immediately behind. Similar cases have been recorded by MacCormack, Longmore, and others. Of the projectiles causing wounds of the eye, the immense majority were either conical lead bullets or portions of iron or lead shells. These, for the most part, produce complete destruction of the eye if they are received straight in the face, and either directly or by smashing the bone of the orbital wall.

Grazing shots only wounded the lids, and at the same time produced some slight denudation of the corneal epithelium. Some few cases were met with in which the bullet was lodged in the orbit without having injured the eye itself, and others, thirteen in all, where after complete destruction of the eye, the bullet was found to be lodged in the orbit.

Great variety was met with in the wounds to the eye caused by the bullet first striking the wall of the orbit. The eye was then mostly wounded indirectly, either by portions of broken bone, or as the result of hemorrhage or inflammation in its immediate vicinity. Of 72 cases of oblique hits, 34 broke through the temporal, 15 the nasal, 15 the upper, and 5 the lower wall of the

orbit. In 2 others the bullet had entered at the neck, passed along under the base of the skull and entered the orbit from behind, causing destruction of the eye as it passed through it. In some cases the conformation of the bridge of the nose had evidently led to the bullets being deflected into the orbit.

Guthrie and Thomson both drew attention to the comparative frequency of the simultaneous wounding of both eyes by bullets. This was also observed in the Franco-German War. A bullet was found to have passed sometimes horizontally, sometimes obliquely through both orbits in 26 cases. Destruction of vision also took place in some cases from extension of the lines of fracture of the skull to the optic foramen, and from the wounding within the cranium of the nerve fibres and visual centres. The most noticeable feature connected with wounds from explosive shells was the frequency of such as resulted from small pieces of metal penetrating the eye. These accidents almost invariably occurred from explosions which took place very close to the individual wounded, consequently several pieces of metal as well as portions of earth, stone, powder, etc., were often found lodged in the eye or orbit. Indirect wounds from projectiles of all sorts were only met with in 19 cases—the most common were those in which a portion of the soldier's gun or helmet was splintered by being struck with the bullet and the eye injured by the splinters. Several cases were recorded of injury to the eye evidently through the smashing of spectacles, and in one the eye was wounded by a piece of horseflesh which had been carried off by a portion of burst bombshell. The comparatively few wounds of bayonet and sword thrusts, for the most part, only involved the lids.

The third section of the report contains a very complete discussion of the types of accidents met with. These are treated under three headings:

1. Contusions and concussions of the eye;
2. Wounds in a stricter sense; and
3. Affections of the eye not immediately the result of the particular accident, but due to subsequent changes in the immediate neighborhood or in other parts of the body.

This section, while it contains nothing perhaps absolutely new, has been compiled in the most thoroughly critical manner, and the different injuries are discussed with very full reference to the literature of the subject. It will certainly well repay a careful study, and is distinctly the best part of the report, but contains too much to condense into an abstract.

The next section has reference to the cases in which sympathetic changes occurred in the other eye. This important chapter seems only to have been included in one other similar report, viz., that on the American war. Though carefully compiled, it is far from being as satisfactory as the other sections, and that because there is no discrimination made between the serious, and more or less malignant form of undoubted sympathetic inflammation, what is now with good reason considered to be an inoculation of the second eye with microörganisms, and the doubtful, and at all events comparatively trivial other forms of sympathy. The number of the cases is swelled, too, by including all in which there was merely sympathetic irritation. In ninety-seven cases in all, it is considered that a sympathetic origin existed for the subsequent conditions met with in the other eye. It was remarked, too, that all the affections of the second eye were met with in cases similar to such as

have been found by experience to predispose to sympathy. Only at most seventeen per cent. of the cases were actual inflammations of the second eye. Sympathetic changes most frequently made their appearance between six months and a year after a wound in the first eye had been received.

The Pathogenesis of Sympathetic Ophthalmia.

Dr. Randolph, of Baltimore (*Archives of Ophthalmology*, vol. xvii. 2), has made a number of careful experiments on the same lines as those which led Deutschmann some time ago to pronounce so strongly in favor of the view, entertained by Shellen and others, that sympathetic inflammation as it is met with clinically is the result of inoculation of the second eye with micro-organisms which find their way directly from one eye to the other along the optic nerves. Dr. Randolph, although his experiments seem to have been conducted with great care, and have been sufficiently numerous to enable him to form a trustworthy opinion, has been unable to confirm any of Deutschmann's assertions. Both in dogs and in rabbits, the latter alone having been made use of by Deutschmann, nothing which could in any way be looked upon as of the nature of sympathetic inflammation followed the inoculation of the first eye with some drops of a suspension of the staphylococcus aureus in sterilized water. Dr. Randolph also failed to find micrococci in human eyes enucleated after perforating injuries.

These results, therefore, reopen the question as to whether or not it is possible to produce anything experimentally, which corresponds to sympathetic ophthalmitis in man. The experimental evidence then of the microbiotic origin of sympathetic ophthalmitis has still to be confirmed. All the clinical facts connected with that curious affection are, however, very much in favor of the migration hypothesis, which may, indeed, be said to afford a very excellent and welcome guide so far, with respect to treatment. Dr. Randolph seems to be fully alive to this, and deserves credit for not having lost sight of the clinical indications, notwithstanding the entirely negative result arrived at from his careful and interesting experimental researches.

Snow-blindness.

Dr. Berlin, of Stockholm, a member of Nordenskiöld's expedition to Greenland in 1883, gives (*Nordiskt Medicinskt Arkiv.*, vol. xx. No. 3) a very complete account of snow-blindness. The symptoms, geographical distribution, and cause of that affliction, have engaged his attention. He begins with a very complete *résumé* of the references to snow-blindness in literature, and finds the first mention of it in Xenophon's *Anabasis* (book iv. chap. v.).

Snow-blindness occurs principally in Arctic regions, as in Greenland, Canada, the Siberian coast, Spitzbergen, and the surrounding ocean. It has been met with, too, as far north as man has reached. On the American continent it extends further south than elsewhere, except in high mountainous regions. It does not occur in Iceland, or in Norway and Sweden, with the exception, again, of isolated cases met with in the mountains. To judge from the protective measures taken by natives in Arctic regions, Esquimaux, and Siberians, it must be a common enough occurrence there. Whenever it occurs in Arctic or Alpine regions it only attacks those who are out in the

open air. It begins to show itself soon after the sun first makes its appearance at the conclusion of the Arctic night. By far the greatest number of cases within the Arctic circle take place in the months of April and May. Berlin believes that in Alpine districts again it might occur at any time, while its greater frequency in spring and summer is to be ascribed to the fact that most Alpine climbing is done at those times. A great many Arctic travellers have noticed that the weather which seems most to favor the occurrence of snow-blindness is what is differently described by them as a peculiar kind of "thick," "heavy," "misty," "foggy," or "hazy" weather. Nothing seems, however, to be known as to the real nature of this weather. The temperature has generally been found to be below the freezing-point.

The affection begins very much like cases of catarrhal conjunctivitis with a feeling as if sand or some foreign body were in the eye, and a desire to blink and shade the eyes. An examination at this period reveals nothing further than a slight hyperæmia of the conjunctiva, increased lachrymation, and slight contraction of the pupils. This is succeeded by an aggravation of the symptoms leading to constant burning pain which radiates over the temples, etc. This gradually leads, too, to blepharospasms, and the patient has then to be led about. The objective appearance at this time are: increased hyperæmia and chemosis of the conjunctiva, the chemosis being limited, however, to a narrow band surrounding the cornea and corresponding to the portion exposed when the eyes are open. Berlin has always found the cornea intact, but others (Envall and Gardner) have described cloudiness and even ulceration of the cornea. The ophthalmoscopic examination reveals nothing distinctly abnormal, and there is no real night or day blindness. Snow-blindness may come on very quickly, in a quarter of an hour even, as observed by Coppinger; the rapidity of onset depends on the degree of completeness of the precautions taken against it. In cases in which the eye has been properly shaded, the affection is longer in developing, and is less likely to be so severe. It lasts two or three days only, if the patient be treated indoors, but removal to the dark does not of itself in any way appear to soothe the suffering. All, even natives, are equally subject to it when the condition are favorable to it. In a few cases only one eye has been affected. An interesting example of this is given: the case of a sergeant who was attacked in the right eye during an expedition from West to East, and some time afterward, and after complete recovery, was again attacked in the left eye whilst the expedition was moving from East to West. Eight other cases met with by the explorers are referred to which show that it is always the eye to the side of the sun which is affected when one alone suffers.

As to the nature of snow-blindness it has usually been supposed that it is a retinal affection caused by irritation from the excessive flare of the light reflected from the snow. This irritation is supposed to give rise to pain and photophobia, and to lead reflexly to irritation of the conjunctiva. Berlin observes, however, that there is absolutely no similarity between the conditions known to be produced by strong light and snow-blindness; there is no pain or photophobia, and no change in the anterior part of the eye, but diminished visual acuity and scotomata. He further points out that the freer the atmosphere is from water vapor the more powerfully is the solar radiation felt. This fact, first discussed by Saussere on ascending Mont

Blanc in 1774, has been abundantly confirmed since by physicists. When in very cold regions, then the sun's rays are felt most burning. The members of Nordenskiöld's Greenland expedition suffered considerably from sunburning. The exposed skin was frequently the seat of an exudative dermatitis. A similar condition is well known amongst Alpine climbers as "Schneerose." Why should the eyes escape, then, an irritation which is so active in other exposed parts? is the reasoning to which Berlin leads up. He considers snow-blindness to be simply, as in his experience it has all the appearance of being, an erythematous conjunctivitis. Tables are given which show that it is most frequent at those times of the year when the solar radiation penetrates most strongly to the surface of the earth. It is mostly met with, too, in very dry regions, and is absent in Norway and Iceland, as he believes, on account of the influence of the Gulf Stream on the moisture of the atmosphere. It was shown by Jensen, in experiments on different animals, that less than 10 per cent. of the heat rays impinging on the eye penetrate to the retina, while 50 per cent., at least, are absorbed by the cornea. The cornea, therefore, receives the greatest burning, and this may well account for the photophobia, as well as for the occasional ulceration referred to. The snow and ice hazes, which have also been found to cause snow-blindness, and the nature of which has never properly been explained, he considers to be cirri which have descended to the ground, and which produce their effect on the eye by simple mechanical irritation.

OTOLOGY.

UNDER THE CHARGE OF

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Foreign Bodies in the Ear.

Dr. A. Marian, of Aussig, Bohemia, adds one more timely warning on this important subject (*Prager med. Wochenschrift*, Oct. 17, 1888). In answer to the question "What shall the general practitioner do when confronted with a foreign body in the ear?" he says: The first thing to be done is to convince himself that a foreign body is really in the ear; also whether it is really in the ear the patient says contains it. It has happened that the patient, in his excitement, has presented the wrong ear for treatment. If, now, the foreign body being present in the ear, any instrument is inserted, without the proper illumination of the ear, not only will the patient suffer pain, but he runs a great risk of receiving an injury to his membrana tympani. After having diagnosticated the presence of a foreign body with the aid of a mirror, the next step is to determine its position, whether it lies in the meatus, the isthmus, or against the membrana in the fundus of the auditory canal. Then the employment of a moderately strong syringing with warm water will usually dislodge and bring out the foreign substance, if it is not wedged tight.

"In all cases, however, in which the general practitioner is unable to determine accurately the precise situation of the foreign body, or in which the foreign substance is imbedded or wedged in the canal, or when the latter has been irritated, wounded, and swollen, through previous unskilful attempts at extraction, the advice is given not ever to attempt syringing the ear, but to call in the service of an aurist. Because it now becomes necessary to adopt a treatment which no general practitioner of medicine is able to carry out."

Soft Chancre of the Middle Ear.

Dr. Guranowski (*Deutsche med. Zeitung; Annales des Maladies de l'Oreille*, Nov. 1888) reports what he considers may be a unique case in science. The above-named peculiar lesion occurred in a young servant girl affected with soft phagedenic chancres of the genital organs; auto-inoculation occurred in the nose from taking snuff with soiled fingers. During treatment of this rhinitis, an acute otitis media developed on the left side, with perforation of the membrana tympani. The etiology of this was rendered clearer by the occurrence, soon after, of small chancres on the tragus and external auditory meatus.

Cure was effected by the application of iodoform and lavage of the Eustachian tube by boracic acid water.

Bacteriological Researches in Cases of Acute Otitis Media.

Dr. Netter of Paris, has made a prolonged study of bacteriology in a number of cases of otitis media acuta, and has published an exhaustive brochure on his work (*Annales des Maladies de l'Oreille*, etc., Oct. 1888).

He starts with the recognition of what he considers a fact, that "otitis media acuta" is not unique and always due to the same microörganism. There are many forms of otitis, each having a special microbe. Each of these forms of disease presents special characteristics dependent upon the properties of the microbes which have given them origin. Hence the undertaking of Netter has not simply a theoretical interest; it has a practical bearing, as it furnishes some important prognostic points.

He claims that four distinct forms of otitis media acuta exist, viz.:

1. Otitis due to the pyogenic streptococcus of Netter, Zaufal, Moos, Holst, and Dunin.

3. Otitis caused by the pneumococcus of Fränkel, also recognized by Netter, Zaufal, and others.

3. An otitis caused by the pneumo-bacillus of Friedländer and Zaufal.

4. An otitis associated with the presence of the pyogenic staphylococcus. (Fränkel, Simmonds, Dunin, Rohrer, and Netter.)

Otitis dependent upon the presence of the streptococcus is the most frequent. It is also claimed that the microbe productive of lobar pneumonia may produce an acute otitis media, and examples of such cases are given.

The microbes of Friedländer have also been demonstrated to be present in the exudation of an acute otitis (Zaufal).

Netter has observed four cases in which the staphylococcus aureus was associated with streptococcus or the pneumococcus, in an acute otitis media.

All the pathogenic microbes which are found in otitis media can be found in the nasal fossæ, the mouth, and the pharynx of healthy subjects.

The frequent occurrence of otitis on both sides is due, in the great majority of cases, to the pathogenic agents which come from the bucco-pharyngeal cavity, and which find their way into the tympanic cavity through the Eustachian tube. The mode of invasion explains the production of otitis in general maladies like typhoid fever, measles, diphtheria, scarlatina, etc.

Sometimes microbes may reach the middle ear by the bloodvessels or the lymphatics, but this is a very rare occurrence. The usual mode of invasion of the middle ear shows the importance of watching the mouth and the pharynx.

It is necessary to endeavor to obtain an antisepsis as perfect as possible in these cavities, especially in measles and typhoid fever. Hence the antiseptic measures of the present day in ear diseases are amply justified by what we know of the various microörganisms which produce otitis media and its complications.

Bacterial Diagnosis and Prognosis in Suppurations of the Middle Ear.

Prof. Moos, of Heidelberg, has made an interesting communication of this subject in the *Deutsche med. Wochenschrift*, Nov. 1, 1888. He claims for Zaufal the merit of having shown that genuine otitis media acuta occurring in otherwise healthy individuals, in consequence of a cold in the head and respiratory tract, is largely influenced by the pneumo-bacillus of Friedländer, and the diplococcus of Fränkel-Weichselbaum. It appears that Zaufal has further shown that the presence of the streptococcus pyogenes in the secretion from an inflamed middle ear is of the greatest importance in a prognostic sense, as it has been so often found in the most serious and life-threatening cases of middle ear inflammation.

Moos then gives the history of three cases of ear disease, illustrative of the above:

In the first case an acute exacerbation occurred in a diabetic patient suffering from chronic purulent otitis media. The mastoid cells then became involved. The pus removed from the mastoid abscess contained the diplococcus of Fränkel-Weichselbaum.

In the second case an acute otitis media occurred, which was followed in the seventh week by inflammation of the mastoid cells. Numerous streptococci and diplococci were found in the pus liberated from the mastoid.

In the third case there was a chronic purulent otitis media with polypi and cholesteatomatous masses in the drum cavity. Caries, too, was found, and phlebitis and thrombus of the lateral sinus ensued. Finally, a septic thrombus formed in the bulb of the jugular vein; meningitis purulenta at the base of the brain and an abscess in the cerebellum were found after death. Large quantities of streptococci were found in the cholesteatomatous masses.

Pathogenesis of Bacteria in Purulent Processes in the Ear.

Dr. Rohrer, of Zurich, explains the pathogenesis of bacteria in the ear as follows (*Deutsche med. Wochenschrift*, Nov. 1, 1888): The localization of bac-

teria from the mouth and naso-pharynx occurs by direct continuity and contiguity through the Eustachian tube, or by means of the bloodvessels and lymphatics. The morphology of the bacteria varies in fetid and non-fetid secretions and also in that of acute and chronic cases. In fetid secretions cocci and bacilli were constant elements; in non-fetid secretions cocci only were found. In the secretion of acute cases bacilli were found only after the secretions became fetid.

In dermatoses of the external meatus and concha there were 82 per cent. of cocci to 18 per cent. of bacilli. In fetid dermatoses there are 67 per cent. of cocci to 33 per cent. of bacilli. In non-fetid dermatoses only cocci of various forms were found.

THE SPHENOID BONE. SOME OF ITS POSSIBLE ACOUSTIC FUNCTIONS.

MR. J. A. MALONEY, otacoustician, of Washington, D. C., has made a series of tests of the conductivity of sound possessed by some of the cranial bones, notably the frontal, the occipital, the parietal, the ethmoid, and the sphenoid (*New York Med. Journal*, Aug. 11, 1888). All of them manifested a very weak conductivity of sound excepting the sphenoid. Not only was a little ball suspended against a wing of the sphenoid thrown off by a slight tap with a mallet on the opposite wing, but when the sphenoid was made to communicate its vibrations to the diaphragm of a microphone in electric circuit with a telephone receiver, merely drawing lightly a fine silk thread over the free wing of the sphenoid was heard distinctly in the receiving telephone. Also breathing gently through a tube against one wing could be heard in the receiver. The temporal bone was submitted to the same tests, but gave similar results only at one point, viz., the jugular fossa. No other cranial bone gave these results in conductivity of sound.

From these experiments, Mr. Maloney traces to the sphenoid and the temporal bones the phenomena of—

1. *Localization of sound.* "The direct or maximum result in localization is probably due to aërial conduction through the meatus auditorius externus. The indirect or bone conduction being through the sphenoid (from one wing to the other and thence to the internal ear upon the opposite side), this, probably, gives a maximum and minimum sensation by which the mental act of localization of sound is accomplished."

2. *Tinnitus aurium.* Since the sphenoid seems extremely susceptible to transmit minute sound vibrations, Maloney suggests that the pumping sounds so frequently mentioned as this kind of subjective noise in the head, may be due to an aneurism or some abnormal condition increasing in intensity the flow of blood through the internal carotid, ophthalmic, or great meningeal arteries in their passage through this bone, or to the same factors through the jugular, in its relation to the temporal bone.

3. *Autophonia.* This phenomenon is explained as follows: "When the Eustachian tubes are closed entirely (by which equal pressure upon each side of the membrana is prevented), may not the strong vibrations of air set up in the larynx and pharynx (the mouth cavity being known as a powerful resonator) be sent to the seat of audition through the agency of the sphenoid bone, particularly at the part situated between the ethmoid and occipital bones?"

4. *Color audition.* "May not color audition, in view of the readiness with

which the sphenoid bone takes up and delivers vibrations, be due to mechanical stimulation of the optic nerve by impingement of the same upon the sphenoid bone in its passage through the optic foramen?"

Diseases of the Acoustic Nerve.

Dr. Giuseppe Gradenigo, of Padua, has recently made a series of clinical studies on the above-named subject, and draws the following conclusions (*Archiv für Ohrenheilkunde*, Bd. 27, Nov. 1888): The acoustic nerve participates, in general, more rarely with endocranial diseases than the optic nerve. Further, it is claimed that the acoustic nerve in the various forms of endocranial diseases which accompany neuritis of the optic nerves, manifests slight disturbances in nutrition, which cannot be demonstrated in the functional tests, and clinically show only an abnormal excitability. Finally, it is claimed that in rare cases in which an endocranial disease is attended by a pronounced functional disturbance in the auditory nerves, a peculiar form of deafness may occur, which is distinguished from the deafness produced by diseases of the internal ear, by the fact that the perception of high notes and watch is maintained, but that for intermediate notes is defective.

DISEASES OF THE LARYNX AND CONTIGUOUS STRUCTURES.

UNDER THE CHARGE OF

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Diphtheria; Topical Treatment with Insufflations of Finely Pulverized Sugar.

C. Loray, of Frankfurt am Main (*Deutsche med. Woch.*, Nov. 15, 1888), as the result of more than eighty observations in children from one year upward and in adults, in all gradations of the disease, finds that the duration and extent of the deposit are much diminished, the fetid odor quickly overcome, the membrane readily detached under copious mucous secretion, and the cough facilitated in many cases of involvement of the larynx. In several cases of extensive ulceration, fatal by sepsis or by pneumonia, Prof. Weigert and his assistants found separation of the membrane in a much more advanced stage than in similar cases which had been treated by other methods. Loray neglects to state the frequency with which he makes the insufflations.

Vinegar is highly recommended by Dr. Friedrich Engelmann, of Kreutznach (*idem.*), as the very best agent of a very extensive detailed series with which he has made experimental observations.

Topical Treatment of Tuberculosis of Larynx.

The topical use of menthol is highly endorsed by Rosenberg, who has used it uninterruptedly since 1885 (*Therap. Monats.*, Aug. 1888), commencing with a 10 per cent. solution in oil and increasing to 20 per cent. He claims for menthol an advantage over lactic acid in its analgesic effects, which increase with its use. The pain following its use passes off much more quickly, and it is not at all caustic. A table of 59 cases thus treated is well worth critical perusal.

Dr. Keimer (*Deut. med. Woch.*, Dec. 7, 1888, et seq.) reports a number of successes under treatment by curetting and frictions with lactic acid. In one instance four miliary tubercles were seen on the epiglottis, as verified by microscopic examination of the fragments scraped. The principal internal treatment was with creasote. A very important point insisted upon by this writer is avoidance of loud speaking.

An Instance of Successful Endolaryngeal Treatment of Carcinoma of the Larynx.

Schnitzler reports (*Deutsch. klin. Woch.*, Oct. 25, 1888) a case treated by him more than twenty years ago, and still living. The patient, a female, had been operated upon twice by Türck unsuccessfully before she came under Schnitzler's treatment in July, 1867. The malady began in 1865 with hoarseness and cough, and the patient had to abandon her occupation as an actress. She was anæmic, emaciated, and dyspnœic, so that she presented the appearance of a consumptive. Exploration of the chest revealed nothing abnormal in the lungs. The vocal bands were reddened and thickened, with small and large gray and red proliferations of horny aspect, which occupied principally almost the entire free border of the right vocal band, and which so occluded the calibre of the glottis that the vocal bands could move only slight distances. Türck's diagnosis of epithelioma had been verified by Wedl from microscopic examination of extirpated particles; and the same diagnosis of Schnitzler, by two of Rokitansky's assistants, Biesadecki and Scheuthauer.

Several applications of the electric cautery were made in Oppolzer's clinic until the neoplasms had been thoroughly destroyed and the vocal bands transformed into veritable cicatricial strands. On September 13th, the parts looked fairly well; but hoarseness continued, with that peculiar falsetto which is almost characteristic of unilateral paralysis. There was still some diminished mobility in the right vocal band, but it was of mechanical origin; the arytenoid cartilage being enlarged and the vocal band much smaller and thinner than its fellow, and, furthermore, so overlaid by the ventricular band as almost to hide it; conditions produced by the morbid process which had long subsided. The cure had been complete.

This observation indicates the propriety of attempts to remove malignant growths endolaryngeally when favorably located, inasmuch as no harm can result if the attempts are timely made and properly executed. Success can be expected only when the malady is localized, when the growth has not undergone degeneration, and when there has been no infiltration into the adjoining lymphatic glands. At the same time not only must the neoplasm be thoroughly eradicated, but the tissues from which it sprung must be effectively

destroyed. The best agent for the purpose is the electric cautery. While much hope cannot be given, yet in some instances life may be prolonged for months and years; and more than this cannot be accomplished by extra-laryngeal treatment, whether partial resection of the larynx or complete extirpation.

The Results of Median Section of the Larynx.

Dr. Albert Hoffa (*Therap. Monats.*, Nov. 1888) studies this subject on the basis of 104 collations of operations performed since 1879, or the period in which antiseptic surgery has been practised. He shows most conclusively that it is not at all a dangerous operation; and that the results depend altogether upon the character of the lesion for which it is performed; while its effects upon the voice depend solely on the seat of the lesion and its special character.

Laryngectomy.

Dr. Edoardo Boccomini successfully extirpated September 25th the entire larynx of a man, aged fifty-four, for cancer. Median incision; detachment from soft parts with spatula; separation from trachea; detachment from pharynx, then from thyro-hyoid membrane. He commenced by introducing a large canula of celluloid, which completely occluded the cavity of the trachea; then gave chloroform. A Faucher tube was introduced into pharynx and œsophagus for alimentation. A dressing of iodoformed gauze was placed over all (*Gaz. med. ital. Lombardia*, Nov. 1888; *Union Méd.*, Nov. 22, 1888).

Dr. E. Küster exhibited to the Berliner med. Gesellschaft (*Berliner klin. Woch.*, Nov. 19, 1888) a man, fifty-five years of age, from whom, August 31, his assistant, Dr. Barth, had extirpated one-half of the larynx for carcinoma. leaving the cricoid cartilage intact. The voice was very good. He showed a larynx from another patient, a man fifty-seven years of age, from whom he had removed the other half on September 10th. Two days earlier he had removed some carcinomatous cervical glands. The superior laryngeal nerve was severed. Bronchitis ensued, but ceased after the excision of the diseased half of the larynx. Three weeks later persistent bronchitis ensued, and death from pneumonia took place seven weeks after the operation. It required some inspection of the preparation to recognize that one-half of the larynx had been removed.

Küster called attention to three points: 1st. He always sought to preserve the cricoid intact in unilateral extirpation. 2d. Glandular infiltration was more frequent than it was generally thought to be. He had performed one complete laryngectomy and four unilateral ones, four for carcinoma, and one for carcinomatous mixed tumor. Glandular infiltration had existed in three cases out of the five. 3d. Section of the superior laryngeal nerve seems to produce bronchitis even when the larynx or trachea is not opened, and sometimes leads to fatal pneumonia. The cessation of the bronchitis in his case, as soon as the excision of the larynx had been accomplished, seemed to indicate that the cases of bronchitis in question were attributable to the penetration of mucus and other matters on account of the abolition of sensibility in consequence of the section of the superior laryngeal nerve.

Tamponing the Trachea.

J. Michael (*Berlin. klin. Woch.*, Sept. 10, 1888) described in the *Deutsche med. Woch.*, 1882, a method of tamponing the trachea by placing compressed sponge around the canula and covering it with parchment foil. This cover he regards an essential portion of the procedure, as without it, the sponge acts as a filter and allows fluids to trickle into the bronchial tract. Hence the failure of the tamponade with uncovered sponge. Michael recommends the surgeon to compress his own sponge in preference to using the bought article in the shops, which he has found unreliable for this purpose. The compressed sponge is to be saturated *in situ* with water or glycerine injected from a hypodermatic syringe, the nozzle of which pierces the covering without detriment to the process.

He has thus tamponed a case of sphacelating laryngeal carcinoma for fifteen months, with three perforations between the trachea and œsophagus, with five weeks' intermission after the perforations had closed; and after the patient's death from marasmus the trachea was found intact and the lungs sound. He also recommends covering the canula with drain tubes when the wound is large enough. This method is absolutely safe. It likewise prevents ulceration from the end of the canula. In removing these tampons Michael recommends the adoption of the position with the head pendant so that any fluid above the tampon escape by the mouth and the fistula.

Cure of Exophthalmic Goitre by Relief to Intranasal Disease.

Hopmann completes (*Berlin. klin. Woch.*, Oct. 15, 1888) the record of a case reported by him in 1884 in the *Tageblatt der* 58. *Versammlung Deutscher Naturforscher und Ærzte zu Strassburg*, in which the treatment of a concomitant rhinopharyngitis sicca cured a case of Basedow's disease in a woman forty years of age. He refers to similar cases reported later by Hack and by Fränkel, cured by treatment of the opposite condition, stenosis of the nasal passages from hyperplastic turbinated bodies.

DERMATOLOGY.

UNDER THE CHARGE OF

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On Pastes.

The object of pastes, as Gruendler states (*Monatshefte für praktische Dermatologie*, No. 20, 1888), is twofold: the absorption of the secretions and

excretions, and the deposition of a powdery residue which serves to fix the medicament on to the skin. To determine which powder or powders were best adapted for these purposes experiments were made testing the absorptive power of the individual powders with water and oil, and with, as to the most important substances, the following results:

	Weight of water.	Weight of oil.
Magnesium carbonate takes up . .	$5\frac{1}{2}$ times	$7\frac{1}{2}$ times.
Kieselgur (a silicious substance) takes up	$3\frac{1}{2}$ "	$3\frac{1}{4}$ "
Kaolin takes up	$1\frac{1}{3}$ "	$\frac{4}{5}$ "
Zinc oxide takes up	$1\frac{1}{5}$ "	$1\frac{2}{5}$ "
Talc takes up	$\frac{3}{5}$ "	$\frac{1}{2}$ "
Creta takes up	$\frac{2}{5}$ "	$\frac{2}{5}$ "
Amylum takes up	1 "	$\frac{9}{10}$ "
Lycopodium takes up	$\frac{1}{2}$ "	0 "

Magnesium carbonate stands first on the list in absorptive power, but fails to fulfil the second condition, for when mixed with fatty substances, instead of a good drying paste of proper consistence there results a soft, sticky cement. As a simple dusting powder for the purpose of absorbing discharges, however, it is unexcelled. It will be seen that the several substances commonly employed in the preparation of pastes, such as kaolin, zinc oxide, and starch, meet, in a great measure at least, the conditions. Lycopodium, which as a dusting and absorptive powder is so generally used, is practically without value, as its absorption of water is, even under exceptionally favorable conditions, but slight, while oil is not absorbed at all.

Purpura Hemorrhagica.

Milligan reports (*Lancet*, October 13, 1888) a case of hemorrhagic purpura with fatal termination. The patient was a stout, middle-aged, able-bodied man, of good history and habits. After several days of rheumatic pains, purpuric spots made their appearance, first on the legs and then on the arms. The pains ceased as soon as the eruption had appeared. The first eight days the disease was apparently retrogressing, but on the ninth day he was suddenly seized with severe pains in the right side of the abdomen. Toward night these diminished somewhat, but early the following morning there was a marked exacerbation of pain, with dulness on percussion. The pain persisted, and the patient passed rapidly into fatal collapse. A post-mortem examination disclosed a healthy condition of all the organs. The lower half of the small intestine was extremely congested, and toward the ileo-cæcal valve was almost black; the cæcum and ascending colon were also of a very dark color. On opening the intestines the above parts were found to contain a large amount of more or less disorganized blood. The striking point about the case, as the author adds, was the comparatively mild type of the cutaneous symptoms, indicating in no way the grave character of the malady.

The Spread of Leprosy.

From the literature and personal investigation Peterson (*Monatshefte für praktische Dermatologie*, No. 20, 1888) has collected data showing a gradual

increase and dissemination of leprosy throughout Russia. In the past sixteen years in St. Petersburg alone the records show forty-three cases, which for evident reasons probably represent but a proportion. He is forced to the conclusion that the disease is due to the bacillus so often described, and that it is spread by contact, the bacillus requiring, however, for its development certain other, as yet unknown, conditions. In view of the possibility of its communication from man to man, the author believes isolation of those affected proper and justifiable.

Sodium Ethylate in the Treatment of Lupus.

Attention is again directed (*British Medical Journal*, October 6, 1888) to the application of a solution of sodium ethylate as a valuable remedy in the treatment of lupus by L. A. Taylor. In the case cited the disease had begun in early childhood and still persisted at the age of fifty-eight, the affected area (the face) being quite extensively and destructively involved. Thorough curetting, under chloroform, was practised by the writer several times, but while the patient was somewhat benefited, the disease continued active and progressive. Ethylate of sodium was applied to the remaining islets with encouraging result. This was applied once daily for three consecutive days. Several days later the scabs or crusts, which had formed, loosened and fell off, leaving a perfectly healthy surface beneath. New foci, as they appeared, were similiarly treated, and in this manner the disease was kept under control and its further progress prevented. The application is attended with but little pain, and this is transitory. During the time the solution is being applied water is not to be allowed to touch the parts.

Treatment of Callosities.

In the *Münchener medicinische Wochenschrift*, No. 28, 1888, Roesen describes his method for the successful treatment of warts, corns, and other callosities. The growth or patch is moistened with an antiseptic solution, and then thickly covered with salicylic acid. Moist borated lint, in several layers, is placed over this, and the whole covered with gutta-percha tissue and bandaged. This is allowed to remain undisturbed for five days, at the end of which time the dressing is removed, and the thickened epidermis is usually found shrunken and loosened from the underlying parts. In callosities of high grade it may be necessary to repeat the treatment. The writer states that he has never seen a caustic effect from the application.

The Etiology of Alopecia Areata.

In the past several years H. Leloir has had (*Bulletin de l'Académie de Médecine*, June 26, 1888) under observation 142 cases of alopecia areata. In 50 of these the most thorough examination, clinically and microscopically, failed to show the slightest evidence of any predisposing or exciting cause for the disease.

In 36 cases the patients were of a markedly nervous temperament, and various nervous symptoms had preceded the appearance of the bald patches.

In a few of the latter cases he examined, histologically, the peripheral and

cutaneous nerves taken from the patches; in one case all the signs of a degenerative atrophic neuritis were found; in another apparently similar case the cutaneous nerves showed no change.

In 21 cases there was sufficient basis for the belief in the contagiousness of the disease. His examinations for parasites were practically negative. In one instance, in the corium, were seen small, granule-like bodies, which could be mistaken for the micrococci described by Robinson as the cause of the disease, but they proved to be the so-called "mast-cells." Numerous inoculations of lower animals were also without result. The author believes, evidently, in the existence of at least two varieties of alopecia areata one contagious (parasitic) and the other tropho-neurotic, but confesses that as yet there are no known clinical or anatomo-pathological characters which would serve to differentiate.

Struma, Scrofula, and Tuberculosis from a Dermatological Standpoint.

Leloir considers at some length (*Bulletin Médical*, July 1 and 4, 1888) the conditions known as struma, scrofula, and tuberculosis. The first is usually transitory, and to be looked upon as a normal physiological state of early life; if it persists, it constitutes the so-called lymphatic temperament, which, in itself, is not pathological, but predisposing. It is characterized, anatomically, by dilatation of the lymphatic spaces of the cutaneous structure. In this state there is a strong disposition to catarrhal troubles, impetigo, and eczema, and a good soil is furnished for the lodgement and multiplication of parasites.

In regard to scrofula, if tuberculous disorders and the so-called strumous state are taken from it, very little, if anything, remains. As the author adds, the "king's evil" of the older writers is but a local tuberculosis. Lupus vulgaris is also, beyond all cavil, a tubercular lesion. In fact, all the various local lesions which have been considered as scrofulous are of a tuberculous nature, and in order that general infection—tuberculosis—may be prevented, active therapeutic measures are urgently demanded.

A Case of Tubercle-inoculation.

Von Düring gives the notes (*Monatshefte für praktische Dermatologie*, No. 22, 1888) of an apparently clear example of tubercular inoculation. The patient, a girl, aged fourteen years, of good antecedent and family history, at least so far as pertained to tubercular diseases, transferred the ear-rings from a companion, who had just died of phthisis, to her own person. Although her ears had been pierced she had not lately been wearing appendages. The ears, therefore, soon became somewhat tender and sore, but she continued to wear the ear-rings. A superficial ulcer gradually developed. The glands of the left side of the neck became hardened and swollen, and the overlying skin in places ulcerated, and these various ulcerative lesions, when the patient came under the writer's observation, a year and a half after her companion's death, presented every indication of a tubercular character. A cough was also present, and on percussion, beginning dulness of the left apex was discovered. The sputa and scrapings from the lesions on the ear and neck were examined, and the presence of the tubercle-bacillus disclosed. At the time of the report the patient was in the last stages of phthisis.

OBSTETRICS.

UNDER THE CHARGE OF

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The Treatment of Puerperal Anæmia.

Osler (*Boston Medical and Surgical Journal*, November 8, 1888) reports a case of puerperal anæmia, profound in character, suffering from fever and diarrhœa, and without splenic tumor; nine months had elapsed since confinement. The blood was lacking in red corpuscles and hæmaglobin, and abounded in leucocytes.

Iron failed signally to benefit the patient; under the use of arsenic she recovered. Arsenic should be given in doses of from 5 to 25 minims of Fowler's solution, three times daily; in cases in which atrophy of the gastric tubules is not present, the drug is specific in its action.

Delayed Labor with Twins.

Fuchs (*Ibid.*) reports the case of a multipara in whom the second twin was born fifty-two hours after the first; the first presentation of the second twin was shoulder, and cephalic version was performed. As uterine contractions did not come on, podalic version was made, and delivery effected; a few moderate uterine contractions accompanied extraction. The placenta of the first twin was adherent. Mother and children recovered.

Axis Traction with Tarnier's Forceps.

Varnier (*Gazette Hebdomadaire*, No. 47, 1888) believes that in cases of pelvic contraction of moderate degree Tarnier's forceps may be applied to the head in the biparietal diameter when engaged transversely at the superior strait and delivery successfully performed, because the instrument leaves the head free to rotate as descent occurs. He illustrates this application of the forceps by cuts, and adds the report of 29 cases treated by Pinard. The anteroposterior diameter of the pelvis in these cases varied from normal to 2.85 inches; in 21 cases delivery was accomplished by forceps and the mothers recovered, 3 children died. In the remaining 8 cases basiotripsy was performed.

Lepage (*L' Union Médicale*, November 20, 1888) reports a successful delivery by Tarnier's forceps applied at the pelvic brim, and adds a detailed account of the method of application. His views are those of Pinard stated above.

The Complications of Pregnancy and Parturition caused by Peritoneal Adhesions and former Suppuration.

Krukenberg (*Archiv für Gynäkologie*, Band xxxiii. Heft 1) has collected reported cases of occlusion of the intestines from peritoneal adhesions caused

by septic inflammation after labor, which ended fatally at a subsequent labor with the usual symptoms of intestinal obstruction. Adhesion of the uterus to other organs may cause delayed labor through weakened uterine contractions and also post-partum hemorrhage.

Krukenberg reports a case of fatal puerperal peritonitis, in which the source of infection was the products of a former perityphlitis, the sac having been ruptured by the growth of the pregnant uterus. Abortion is not infrequently produced by adhesions preventing the growth of the impregnated uterus.

Kyphotic Pelvis; Spontaneous Delivery at Term.

Gustav Braun (*Wiener klinische Wochenschrift*, No. 34, 1888) reports a typical case of kyphotic pelvis in which the pelvic inlet was oval, enlarged in its diameters; the outlet was contracted in all diameters, especially transversely. Anteversion of the uterus was present; the fœtus was in right occipito-posterior position and presentation.

The anteversion of the uterus was corrected by an abdominal band; labor occurred spontaneously, the head descending in the right oblique diameter. After tedious labor, birth occurred spontaneously in occipito-posterior position, efforts to rotate the occiput in front having failed. The puerperal period was normal.

Craniotomy at the Berlin Frauen-klinik.

Determann (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band 15, Heft 2) reports 239 craniotomies, performed in 1.08 per cent. of the total number of labors. Craniotomy was performed less frequently than in other German maternities whose statistics have been recently published.

While contracted pelvis was the predisposing cause in 163 cases, excessive size of the fœtus demanded the operation in 130 cases; the decisive element in each case was disproportion between fœtus and pelvis, not absolute pelvic measurements. The living fœtus was perforated in 19 per cent. of cases; the after-coming head in 47 cases. With improvements in antisepsis and methods of operating, the mortality rate has diminished from 12.8 per cent. to 9.4 per cent.

Determann regards the modern Cæsarean section as a direct rival to craniotomy, and destined to supersede it.

Amputation of the Pregnant Uterus, an Improvement on the Modern Cæsarean Section.

Tait (*British Medical Journal*, November 17, 1888), in reporting a second series of cases, draws attention to 3 amputations of the pregnant uterus, in which natural delivery was impossible, with 3 recoveries.

He operates by making an incision large enough to admit the hand; passes an unperforated drainage tube about the cervix, makes a single hitch in it, draws it tight, and gives it to an assistant. He then opens the uterus, enlarges the cut by his fingers, and delivers the child. The rubber tube is then tightened; sponges are packed about the cervix to keep blood from the abdomen, knitting-needles are passed through the tube and cervix, making a

clamp. The uterus is cut off three-quarters of an inch above the ligature, the stump dressed with perchloride of iron; the wound is stitched around the stump, which is brought to the lower angle of the wound.

Tait claims originality in method, simplicity, rapidity, safety, and success for this procedure for cases in which subsequent pregnancy should be prevented.

Two Cases of Extra-uterine Pregnancy Treated by Laparotomy.

Richardson (*Boston Medical and Surgical Journal*, No. 23, p. 549, 1888) reports a case of pregnancy at about three weeks, almost in collapse; tenderness and an indistinct tumor existed close to the uterus, on the right; the abdomen was not enlarged. Laparotomy revealed hemorrhage from an enlargement on the right Fallopian tube near the ovary; tube, ovary, and tumor were removed; the patient rapidly recovered. Examination showed ruptured tubal pregnancy.

His second case was advanced abdominal pregnancy; the placenta was adherent to the intestines and posterior abdominal wall; it was largely removed, and drainage was secured by a tube passing through the posterior cul-de-sac into the vagina; recovery followed.

The Treatment of Tumors in the Pelvis Complicating Pregnancy and Parturition.

Fehling (*Deutsche medicinische Wochenschrift*, No. 49, 1888) estimates the frequency of ovarian tumor, as a complication to pregnancy, to be 1 in 891 cases; they commonly grow rapidly during pregnancy and occasion great discomfort. Palliative treatment is generally useless. Ovariotomy may be performed with 9.5 per cent. mortality; pregnancy is interrupted in from 20 to 50 per cent. of cases. He advises ovariotomy when the tumor has become as large as an orange and causes disturbance; induction of labor and puncture of the cyst are not recommended. Should both ovaries be found diseased, the operator must remember that the removal of both is followed by hemorrhage from the uterus, as a rule, which would produce premature labor. Ovariotomy during labor is accompanied by a mortality of from 29 to 40 per cent. An ovarian cyst complicating labor should be pushed up into the pelvis; emptied by puncture through the vagina; or incised, emptied, and tamponed with iodoform gauze. Cæsarean section should supersede craniotomy on the living fœtus in these cases.

Fibromata increase largely during pregnancy; they frequently do not complicate labor; when they occasion delay they should be displaced. When this cannot be done, amputation of the uterus at the cervix gives the best results; Cæsarean section, when the incision passes through a fibroid, results in necrosis of the tumor and septicæmia.

Carcinoma causes abortion in from 30 to 40 per cent. of cases. Palliative operations and procedures during pregnancy are useless.

In carcinoma of the cervix the uterus should be extirpated at the second or third month; other measures are useless. When all hope of this operation is lost pregnancy should be maintained in the child's interests. At labor incision of the cervix may be required with the use of forceps; version is contra-

indicated. Craniotomy should be performed upon the dead fœtus; amputation of the uterus should be chosen when the fœtus is living.

A Finger Irrigator and Douche Curette for Puerperal Antisepsis.

Auvard (*Archives de Tocologie*, No. 10, 1888) has found the ordinary methods of giving antiseptic douches inefficient because the fluid does not reach all portions of the vagina and cervix. He fastens a rubber irrigator tube on the palmar surface of an index finger by a rubber band, and directs the douche more efficiently. He has also devised a curette having a hollow stem through which an antiseptic solution flows, while the uterine wall is traversed by the blade of the curette.

Puerperal Sepsis by Infection from the Person of the Obstetrician.

Hewetson (*Lancet*, November 24, 1888) reports the case of a medical acquaintance suffering from failure of health produced by neglected purulent otorrhœa, with retention and absorption of septic matter. Inquiry disclosed the fact that a large proportion of his puerperal patients suffered from septicæmia. The cure of the physician was followed by the disappearance of septicæmia from his practice.

A second case is reported, in which an assistant suffering from syphilitic necrosis of the nasal septum communicated sepsis to a puerperal patient, with fatal result. The lesson of these cases is obvious.

An Improved Dressing for the Umbilical Cord.

Epstein (*Prager medicinische Wochenschrift*, No. 43, 1888) has abandoned complicated dressings for the cord. He cuts it from one to one and a half inches from the umbilicus; strips it and powders it with salicylic acid and starch or iodoform; it is then enveloped in a little sack made of gauze allowing free access of air; this commonly comes away with the cord, as but a single dressing is needed.

In preventing thrush and all bacterial disease of the mouth and air passages, he believes it of primary importance that care be taken not to wound the mucous membrane by efforts to cleanse it or remove mucus. Interference is rarely needed if this precaution be observed. He recognizes the value of sterilizing milk given to infants, and finds fresh milk from a nursing woman free from germs.

The Medico-legal Evidence of Child-murder.

Hofmann (*Wiener klinische Wochenschrift*, No. 23, 1888) reports the result of an official investigation by the faculty of the Vienna Hospital, in the case of a woman accused of child-murder, under the following circumstances: The mother, an unmarried woman, delivered herself of the fœtus in the night, extracting it manually from the vagina, without awakening a woman who slept in the same room. The fœtus was thrown into a canal, where it was

found seven days afterward, presenting the following appearance: It was eight months advanced, and well nourished. The left eye protruded, as in exophthalmus. Over the carotid and pneumogastric, upon each side, was a discolored, abraded surface, which apparently had resulted from the grasp, in throttling, of a human hand. The lungs floated in water, and the police surgeon who examined the body gave a diagnosis of fœticide by strangulation.

The hospital experts reversed the decision as follows: A careful examination of the bones led to the belief that the fœtus was not as mature as supposed. No microscopic examination of lung tissue had been made, and its buoyancy in water might have been caused by the presence of gases of decomposition. The discolored surfaces upon the neck extended along the carotids in such a manner that they might easily have been post-mortem staining from the bloodvessel, without violence. The mother undoubtedly made traction upon the neck in effecting delivery, but positive evidence of fœticide was wanting. The fœtus was premature, and death had resulted naturally, possibly in utero.

GYNECOLOGY.

UNDER THE CHARGE OF

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The Removal of Submucous Fibro-myomata by Laparotomy.

Freund (*Centralblatt für Gynäkologie*, December 8, 1888) reports the following case: A patient, aged forty-five years, entered the hospital for the relief of profuse menorrhagia associated with an offensive discharge from the vagina, and considerable distention of the abdomen. On examination a uniform enlargement was found in the median line, about the size of the pregnant uterus at the sixth month. Pregnancy was positively excluded. Under ether the finger could be introduced into the uterine cavity, where a large sessile tumor was felt on the right side near the fundus.

Removal of the growth per vaginam was considered impracticable on account of the length and rigidity of the cervix, and the site and sessile character of the tumor. Laparotomy was elected, with the alternative of either amputating the uterus, or opening it and removing the tumor. It was determined to begin with the latter procedure. The uterus was exposed through an ample abdominal incision, and was lifted out of the cavity. The vessels in the broad ligaments were greatly dilated. A rubber cord was placed around the cervix, the uterine wall was incised as in Cæsarean section, and the tumor was drawn out with a volsella. Its capsule was opened, and it was enucleated with the fingers. A second submucous fibroid of smaller size was removed in a similar manner. The uterine cavity was much enlarged, and the muscular wall at the fundus was thickened; near the middle of the poste-

rior aspect the wall was greatly thinned, bearing a close resemblance to the lower segment of the gravid uterus. There was general hypertrophy of the endometrium, which presented a mottled appearance, ecchymoses alternating with yellowish-white spots; at the fundus the mucosa was detached from the subjacent muscular layer and hung in loose folds. The ragged wounds marking the sites of the tumors were trimmed off, and the separated endometrium was united by fine sutures, the cavities which contained the growths being packed with aseptic gauze, one end of which was carried through into the vagina. The uterine cavity was then carefully disinfected and tamponed with iodoform gauze, which also protruded from the cervix. The uterine wound was closed with deep and superficial sutures according to the usual method. The uterus contracted well as soon as the tumors were removed, and did not become relaxed during the operation. There was only slight bleeding after removal of the rubber cord. Duration of the operation one hour and three-quarters. After-pains followed the operation, and forced out the larger tampon, the one at the site of the tumor coming away on the third day. The patient made a smooth recovery. At the end of four weeks the uterus extended only a finger's breadth above the symphysis pubis, was freely movable and painless. The former symptoms were entirely relieved.

Peri-urethral Sarcoma.

Thiem (*Frauenarzt*, November, 1888, Heft II.) reports a case of this rare affection (with drawings). The patient was aged fifty-six years. The growth was as large as a walnut, and completely surrounded, without involving, the urethra, the latter being compressed against the arch of the pubes. The clitoris was entirely merged in the mass. A microscopical examination showed that the urethra was not affected, neither was the probable origin of the neoplasm apparent.

The Diagnosis of Abdominal Tumors.

Minkowski (*Berliner klin. Wochenschrift*, 1888, No. 31) speaks highly of artificial distention of the stomach and colon (the former with carbonic acid gas, the latter with water) as an aid in recognizing the exact relations of abdominal tumors, as practised by Naunyn in over one hundred cases. The stomach is first inflated by the introduction into it of bicarbonate of soda and tartaric acid, and the resulting displacement of the tumor is carefully noted. The gas is then withdrawn through a stomach-tube, and the colon is distended with water, the relative positions of the intestine and tumor being observed. As a result of a large series of observations the writer infers that when the stomach and large intestine are hyper-distended they displace the tumor *toward the normal site of the organ from which it springs.* Cases are cited in which the origin of hepatic, splenic, pancreatic, and ovarian neoplasms was thus ascertained.

Another aid in the differential diagnosis is the inspection of the abdomen from the side, whereby the examiner is able to note the point of greatest protrusion, as at the edge of the ribs on the right side in a case of hepatic tumor, in the lumbar region in a case of enlarged kidney, etc. The abnormal pro-

trusion of the artificially distended colon over a renal tumor is also to be noted. Minkowski considers the excursions of the tumor with the respiratory movements as an important point. After a deep inspiration the examiner fixes the enlargement; on expiration an hepatic tumor will be drawn upward with the diaphragm in spite of the efforts to restrain it. Neoplasms springing from the other abdominal viscera, if they are not adherent to the liver, can be prevented from rising during expiration.

Tuberculous Infection Transmitted through the Genital Tract.

Derville (*Gaz. Méd. de Paris*, September 8, 1888) states that he has often found tubercle-bacilli in the vaginal discharges of women who gave a tuberculous history. It is difficult to attribute the infection to any other than a direct source, such as unclean instruments or syringes, or, more probably, to semen, which latter may be infected even when there is no positive evidence of tuberculosis of the urino-genital tract. The writer concludes that genital tuberculosis occurs in women more frequently than is generally supposed, and that it may be the first indication of disease which may subsequently involve the lungs or peritoneum. With regard to the prophylaxis, he recommends local cleanliness, both as regards sexual congress and vaginal injections and examinations.

Jacquot, in a thesis published in the same journal for September 22, questions the statement that tuberculosis can be transmitted during the sexual act. Genital tuberculosis is explained more intelligently by reference to the deposit of bacilli (which remain latent for some time) upon an organ which is the seat of traumatism or inflammation, just as in other cases of localized tuberculosis. Such prophylaxis as may be adopted consists in guarding against dissemination of the bacilli.

The Value of Hysterorrhaphy.

Lee (*American Journal of Obstetrics*, December, 1888) reports six cases of primary hysterorrhaphy, in four of which there was an undoubted cure. He regards it as not only a justifiable, but an indispensable, operation in cases of retro-displacement and fixation of the uterus, which resist all other modes of treatment, and in which the patient's sufferings are unbearable. If the uterus is movable, this constitutes *per se* a contra-indication to hysterorrhaphy, and calls for Alexander's operation. He disapproves of passing the sutures through the fundus uteri, and prefers Chinese silk to silkworm-gut. No death from hysterorrhaphy has yet been reported.

[Since the above was written we have heard of one immediate and one remote fatal result following this operation.—Ed.]

Total Extirpation of the Non-cancerous Uterus.

Frank (*Annales de Gynécologie*, December, 1888) would limit the operation to cases which have resisted all the ordinary means of treatment, and in which there is not too great risk for the patient, who should be of somewhat advanced age. It is sometimes necessary to perform it where removal of the

ovaries has been unsuccessful. Of twenty-five women operated upon all recovered, and were relieved of the obstinate pelvic pains which constituted the indication for the operation. In two instances hystero-epilepsy was not relieved by Battey's operation, but ceased immediately after hysterectomy was performed. [The writer draws the extraordinary lesson from these cases that it is wise to remove the uterus with the ovaries, since, after ablation of the latter, the womb "is a useless organ," which often becomes the seat of pain (!).—ED.]

VAGINAL HYSTERECTOMY.

THIEM (*Ibid.*) is strongly in favor of the operation, even in apparently doubtful cases. He calls attention to the fact that the greater number of operable cases encountered by gynecologists in Berlin is probably due to the fact that patients are better educated with regard to the importance of applying for treatment when serious symptoms are first observed. To clinics in the smaller cities of Germany, fed from the country women are sent by their physicians, who have not recognized the necessity of making a vaginal examination until the disease has become incurable. The attempt to obtain cicatrization in such cases by the use of caustics is often unsuccessful. Such palliative treatment produces only temporary benefit. When the entire uterus is removed, on the contrary, a firm cicatrix is formed, which frequently does not become the seat of fresh ulceration, the patient dying from metastasis rather than from a recurrence of the disease at the site of operation.

If a decided amelioration of the patient's condition follows palliative treatment, this is, in itself, an evidence that the case was not an inoperable one, and that total extirpation would have been followed by good results. Even in cases in which the parametric tissues are infiltrated an operation ought not to be refused, since it is not always possible to distinguish cancerous infiltration from simple inflammatory induration. Insurmountable difficulties in the technique should alone prevent the surgeon from performing a radical operation. Finally, there may be cases in which vaginal hysterectomy is justified for the cure of obstinate hemorrhage not of cancerous origin, on the same principle by which the surgeon amputates a limb to arrest bleeding which he cannot otherwise control.

[These radical views will hardly meet with general approval. The author makes too light of the technical difficulties in certain cases, and of the consequent danger that the patient may succumb to the operation.—ED.]

SECHEYRON (*Gaz. Méd. de Paris*, September 15, 1888) under this term includes all incisions made in the uterus per vaginam, whether in the cervix or in the body of the organ. It is employed not only to relieve stenosis and cicatrices, but in order to open the cervical canal sufficiently to allow the passage of the finger or instruments, and to remove intra-uterine growths. The following are to be regarded as contra-indications to the operation: 1. If the tumor is too large, *i. e.*, larger than a man's head. 2. If there are several tumors at the fundus. Under these circumstances vaginal hysterectomy or supra-pubic amputation may be preferable. In extirpating intra-uterine fibromata the writer prefers to split the cervix and the lower segment of the

uterus as high as the neoplasm, which he removes piecemeal, according to Péan's method.

Prolapse of the Ovaries.

Vallin (*Thèse, Ibid.*, September 22, 1888) affirms that the ovary has normally a vertical position, occupying the *fossette ovarienne*, or angle between the bifurcation of the iliac vessels; below it lies the *fossette sous-ovarienne*, which is bounded posteriorly by the utero-sacral ligaments. It is quite movable (with the uterus) around a fixed point, which is the insertion of the infundibulo-pelvic ligament; prolapse of the organ is due to the relaxation of its supports from defective involution after pregnancy. Pain during defecation and coition are the most characteristic symptoms. Oöphorrhaphy is inapplicable, except to cases in which the ovary is not diseased. Pessaries afford but little relief. The writer favors vaginal oöphorectomy.

The Action of Certain Drugs on the Utero-ovarian System.

Lombe Atthill (*Dublin Journal of Medical Science*, December, 1888) discusses the question, whether the ordinary drugs which are supposed to exert a direct action upon the uterus have any influence on the menstrual flow. Ergot, strychnine, and quinine were administered with negative results; the natural inference being that either these drugs did not cause contraction of the uterine muscle, or if this contraction occurred it had no effect on menstruation. Purgatives, such as aloes, can not be regarded as true emmenagogues. The writer has no faith in permanganate of potassium, which has been followed by no results whatever in his hands.

For the relief of ovarian congestion without actual disease of the ovaries, attended by menorrhagia, he has found the bromides especially valuable. Their administration must be begun five or six days before the period begins, thirty grains being given thrice daily. Ergot does not increase their efficiency. The latter drug (Squibb's) is the only one on which reliance can be placed in cases of hemorrhage due to intra-mural (*not* pedunculated) fibroids, but its action is uncertain. Hemorrhage due to malignant disease cannot be checked by drugs administered internally.

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